

PHILOSOPHICAL TRANSACTIONS OF THE ROYAL
SOCIETY OF LONDON VOL. 123 PART II 1833

XIX. *Observations of Nebulæ and Clusters of Stars, made at Slough, with a Twenty-feet Reflector, between the years 1825 and 1833. By Sir JOHN FREDERICK WILLIAM HERSCHEL, Knt. Guelp. F.R.S. &c.*

Received July 1,—Read November 21, 1833.

THE following sheets contain the results of observations begun about the year 1825, and prosecuted with more or less assiduity from that time up to the commencement of the present year, in pursuance of a design to review the nebulæ and clusters of stars discovered by my father; and perhaps, in so doing, to add to their number, and to extend in some degree our knowledge of the nature and physical construction of that mysterious and interesting class of bodies. It was my original intention to have deferred the publication of these observations until I should have been able to have presented their results to the Royal Society in the more complete form of a general catalogue of nebulæ and clusters visible in this latitude; in which all my father's nebulæ should have been included, and their places determined by at least two observations. To have done this, however, would have required several years' additional work; and the want of an extensive list of nebulæ arranged in order of right ascension, having, since the recent improvements in the achromatic telescope, and the increased assiduity of astronomers in the detection and observation of comets, become continually more pressing, and the deficiency more and more complained of, I have thought it on the whole a preferable course to supply that deficiency so far as I am able, not by the production of a catalogue pretending to a precision and a completeness I am unable yet to give it, but by simply stating the individual results of such observations as I have hitherto made; with no other preparation than that of reducing them all to a common epoch, arranging them in order of right ascension, and bringing together, in every case where the same object has been more than once observed, all the observations of it which occur. By so doing, two distinct ends are accom-

plished. In the first place, the series of observations thus arranged can be used, as a catalogue, for reference, and may serve the purposes of one, until a more perfect one can be produced—(*valeat quantum*). In the next place, the results so stated, carry with them their own weight and evidence. Where several observations of one and the same object occur, their agreement or disagreement will enable every one to assign to them their proper degree of credit,—to appretiate the amount of error, both accidental and inherent, to which the system of observation adopted is liable; and being thus impressed with a due notion of the degree of latitude with which each result is to be interpreted, he will readily perceive what reliance can be placed on single observations, unchecked by the context.

My mode of observing,—the general character of the instrument employed, and the principal sources of error to which its determination of the places of objects is liable, are stated in considerable detail in my five catalogues of double stars discovered with it, published in the Memoirs of the Astronomical Society. To these, therefore, I will refer for the particulars in question: but it will be right here to mention, that a much greater latitude of error must unavoidably subsist in observations of nebulae than in those of stars. Many of these objects present a large and ill-defined surface, in which it is not always easy to say where the centre of greatest brightness is situated. Vast numbers of them are so extremely faint as to be with difficulty discerned at all, or not until they have been some time in the field of view, or are even just about to quit it. In such cases the observations become hurried and uncertain; and this peculiar and fertile source of error and mistake is greatly increased by their excessively irregular distribution over the heavens,—crowded together in some places so as to allow hardly any interval between their transits,—while in others whole hours elapse without a single nebula occurring in the zone of the heavens under examination. In these crowded parts of the heavens, it is not only the number, but the variety and interest of the objects which distract attention and render it scarcely possible to proceed with that methodical calmness and regularity which is necessary to ensure numerical correctness, especially when the observer has continually present to his mind the rarity of his opportunities. It is only in the months of March, April, and May that the richer parts of the heavens can be advantageously observed, and

then only in the *complete* absence of the moon, and of twilight. When to these conditions we add those which arise from the variable and uncertain nature of our climate, it will be seen that a number of circumstances by no means frequently concurring, is necessary to produce a night in which it is possible to make any great progress in a review of nebulae; and that in fact there is hardly any branch of astronomy which has a greater tendency to create a sense of hurry, of all things the most fatal to exact observation.

The observations which are here registered comprise, more or less, about 2500 nebulae and clusters of stars, which is the number of those observed by my father; but of the two collections, only about 2000 are common to both, the remaining 500 of mine being new. It may serve to show the close and rigorous nature of my father's scrutiny, when I state, that among these 500 I can call to mind only one very conspicuous and large nebula, and only a very few entitled to rank in his first class, or among the "bright nebulae." By far the greater proportion of them are objects of the last degree of faintness, only to be seen with much attention and in good states of the atmosphere and instrument. This is so far satisfactory, that it shows pretty evidently our knowledge of the nebulous contents of the northern hemisphere to be at length nearly complete, and that to make a further step, the powers of an instrument like the 40-feet reflector will be required.

It has generally been my practice to make some kind of sketch or drawing, sometimes more, sometimes less elaborate, of any nebula at all remarkable which presented itself. In many instances careful drawings have been made and repeatedly compared, at distant intervals, with the objects they have been intended to represent. The difficulty of making satisfactory representations of such objects is, however, extreme; and of those which accompany this paper, as specimens of the various classes of objects which the heavens present, I am rather disposed to apologize for the incorrectness than to vaunt the accuracy. General resemblance, however, I can vouch for; and where fidelity in details has been attempted, I should hope that glaring departures from nature will hardly be found to subsist. Among the figures will be found representations of some very extraordinary objects, which have not hitherto been sufficiently pointed out to the notice of astronomers, and of which indeed some of the

most remarkable peculiarities have escaped every former observer. These are briefly noticed in the descriptions appended to each observation, and more distinctly and at large in the explanations of the plates. Meanwhile it is only necessary for any reader to cast his eye over the figures, to be satisfied that many of these mysterious objects possess a symmetry of parts, and a unity of design, which, singular as their constitution must appear, strongly mark them as systems of a definite nature, each complete in itself, and subservient to some distinct purpose of which it is in vain for us to conjecture the nature.

The manner in which the observations are presented in the following pages requires little explanation. The first column contains a general number for convenience of future reference; the second, the number or name under which each nebula is to be found, either in my father's catalogues (in which case his class and number is set down,) or in the brief but important list furnished by MESSIER in the *Mémoires de l'Académie des Sciences* for 1771, and the *Connoissances des Temps* for 1783 and 1784, which are indicated by the letter M. When no previous mention of a nebula or cluster could be found in the writings of former observers, it is designated as *Nova*. A very few are due to STRUVE. These are noted by Σ .

The third column contains the right ascension, and the fourth the north polar distance, for 1830.0. The manner in which these elements are obtained from the rough observations, or the process of reduction employed throughout the work, will be fully stated in an Appendix annexed to the observations, as well as other matters of detail which may be advantageously deferred. Under the head of each nebula, as above mentioned, all its observations are brought together, and for distinctness' sake, the hour and minute in R , and the degree in N.P.D. are only once set down for each, viz. in the upper line, or that which contains the earliest R of each. When the subsequent observations in R fall into the next minute, the seconds are counted on beyond 60; and when those in polar distance pass into the next degree, the same contrivance, i. e. counting the minutes beyond 60, is resorted to, to avoid doubling the initial entries and so misleading the eye. When no R or no P.D. has been observed, the fact is indicated by dotted lines. When only a rough approximation has been obtained (a case unfortunately too common), or when, none having been procured, the

necessary datum has been taken from the working list book, this is indicated by the sign $\pm$. What is here meant by the working list will be explained in the Appendix.

The column headed "Description and Remarks" contains the abbreviated description taken down, at the time of observation, from the sweeping book. The following is the system of abbreviation used.

B	denotes	Bright.	l	denotes	long or little.
b	_____	brighter.	M	_____	in the middle.
br	_____	broad.	m	_____	much.
c	_____	considerably.	N	_____	nebula.
Cl or cl	_____	cluster.	neb	_____	nebulous or nebulosity.
comp	_____	compressed.	n	_____	north.
D or d*	_____	double star.	p	_____	pretty, preceding.
E	_____	extended, elliptic, or elongated.	pos	_____	angle of position.
e	_____	extremely, excessively.	R	_____	round.
F	_____	Faint.	r	_____	resolvable.
f	_____	following.	S	_____	small.
fig	_____	figure.	s	_____	south, suddenly.
g	_____	gradually.	st	_____	star, stars.
i or irr	_____	irregular.	sc	_____	scattered.
L	_____	large.	v	_____	very.

* Star.

☾ Moon above the horizon.

☾☾ Moon very troublesome.

⊕ Globular cluster.

In all the descriptions the following order is, or ought to be, adhered to. First the degree of brightness is mentioned, characterized by eB, vB, pB, B, pF, F, vF, eF. Next, the size, generally indicated by L and S with their adverbial adjuncts e, v, p. Thirdly, the general form, as R, E, mE, &c. Fourthly, the degree and rate of condensation, as bM, s bM, vgl bM, &c. If the nebula be resolvable, it is next expressed by r. After these come more distinct numerical particulars, as the estimated diameter, indicated by the number of seconds it was judged to subtend; the measured, or estimated length, breadth, or position with the meridian, &c.; and any other remarks which may have appeared desirable to note at the time. Clusters are characterized as Rich, or poor, or compressed, loose, or scattered, &c. For example:—

"v B; v L; l E; v g p m b M; 50" l; 45" br; pos 29° 3 by microm. a ✕ 9 m 45° n p dist 80". Which expanded runs thus:

"Very bright; very large; little extended; very gradually pretty much brighter in the middle; 50" long; 45" broad; angle of position (reckoned always from the north, and from a meridian, in the direction north, following, south, preceding,) measured 29° 3 by the micrometer. A star of the ninth magnitude is situated 45° north preceding the centre of the nebula, and at a distance from it of 80", (both by estimation)." *Measured* angles are always marked as above, in degrees and decimals.

Finally, the last column contains the sweep in which the observation occurs, numbered regularly on in order of time up to sweep 427, with only one interruption of the order, viz. that the sweeps marked 43, . . . 49 precede sweep 1 in order, having been written down on separate sheets in the year 1823, before the commencement of my more regular plan of observation, and mislaid.

Observations of Nebulae and Clusters of Stars.

NGC	No.	Synonym.	Δ 1850-0.	N.P.D. 1850-0.	Description and Remarks.	Sweep.
12	1	III. 868.	$\begin{smallmatrix} h & m & s \\ 0 & 0 & 1.6 \end{smallmatrix}$	$\begin{smallmatrix} s & s & s \\ 86 & 19 & 58 \end{smallmatrix}$	Very Faint (v F); Large (L); very gradually a little brighter in the middle (v g l b M); 40" in diameter (40").	95
			2.5	19 21	Bright (B); Small (S); very suddenly much brighter in the middle (v s m b M); 12" long; much extended (m E); a star precedes.	300
13	2	III. 866	$\begin{smallmatrix} h & m & s \\ 0 & 0 & 2.0 \end{smallmatrix}$	$\begin{smallmatrix} s & s & s \\ 57 & 30 & 40 \end{smallmatrix}$	No description	102
			4.7	30 51	Small stars and nebulosity.	104
14	3	II. 591	$\begin{smallmatrix} h & m & s \\ 0 & 0 & 3.0 \end{smallmatrix}$	$\begin{smallmatrix} s & s & s \\ 75 & 8 & 37 \end{smallmatrix}$	e F; R; b M; a star 10 m, n p, dist. 5'	174
			3.6	7 41	e F; R; v g v l b M; 40"	175
			7.5	7 23	F; R; v g b M; 60"	11
			...	...	v F; R; l b M	1
16	4	Nova?	$\begin{smallmatrix} h & m & s \\ 0 & 0 & 19.6 \end{smallmatrix}$	$\begin{smallmatrix} s & s & s \\ 63 & 13 & 29 \end{smallmatrix}$	p B; R; b M; 20" (? if not IV. 15)	172
10	5	IV. 13	$\begin{smallmatrix} h & m & s \\ 0 & 1 & 50 \pm \end{smallmatrix}$	$\begin{smallmatrix} s & s & s \\ 63 & 15 & 0 \end{smallmatrix}$	A star 15 m with a burr Δ R from Cat	178
29	6	II. 853	$\begin{smallmatrix} h & m & s \\ 0 & 1 & 58.5 \end{smallmatrix}$	$\begin{smallmatrix} s & s & s \\ 57 & 33 & 27 \end{smallmatrix}$	p B; p L; irreg fig; (very clear sky).	106
			59.8	35 33	p B; E	100
37	7	III. 861	$\begin{smallmatrix} h & m & s \\ 0 & 3 & 32.6 \end{smallmatrix}$	$\begin{smallmatrix} s & s & s \\ 59 & 54 & 15 \end{smallmatrix}$	No description	102
			36.9	53 31	p F; L; R; (very foggy)	104
			...	54 30	e F; S; R	178
40	8	IV. 58	$\begin{smallmatrix} h & m & s \\ 0 & 3 & 52.5 \end{smallmatrix}$	$\begin{smallmatrix} s & s & s \\ 18 & 25 & 17 \end{smallmatrix}$	A * 10 m with strong neb atmosph 15" diameter. Exactly R and p suddenly fading away makes a D * class 5 with a * preceding.	378
			55.5	25 24	The L * of a D * strongly affected with a neb burr. Pos 241° 4; Δ R = 25'; 10 and 12 m.	380
			59.4	25 43	A star 11 m with a luminous atm 30 or 40" diam.	228
13	9	Nova.	$\begin{smallmatrix} h & m & s \\ 0 & 4 & 12.4 \end{smallmatrix}$	$\begin{smallmatrix} s & s & s \\ 60 & 1 & 48 \end{smallmatrix}$	e F; has * 12 m 45" dist; pos 325°?	100
44	10	Nova.	$\begin{smallmatrix} h & m & s \\ 0 & 4 & 26.5 \end{smallmatrix}$	$\begin{smallmatrix} s & s & s \\ 59 & 39 & 22 \end{smallmatrix}$	e F; v S; not to be seen but in the clearest night	106
52	11	III. 183	$\begin{smallmatrix} h & m & s \\ 0 & 6 & 23 \pm \end{smallmatrix}$	$\begin{smallmatrix} s & s & s \\ 72 & 24 & 21 \end{smallmatrix}$	v F; S; E	92
56	12	Nova.	$\begin{smallmatrix} h & m & s \\ 0 & 6 & 36.4 \end{smallmatrix}$	$\begin{smallmatrix} s & s & s \\ 78 & 30 & \pm \end{smallmatrix}$	About this place a considerable space seems affected with nebulosity.	14
57	13	II. 241	$\begin{smallmatrix} h & m & s \\ 0 & 6 & 45.4 \end{smallmatrix}$	$\begin{smallmatrix} s & s & s \\ 73 & 36 & 50 \end{smallmatrix}$	B; S; s b M	92
61	14	III. 428	$\begin{smallmatrix} h & m & s \\ 0 & 7 & 42.6 \end{smallmatrix}$	$\begin{smallmatrix} s & s & s \\ 97 & 15 & 48 \end{smallmatrix}$	F; R; p s b M; 15"	186
63	15	V. 16	$\begin{smallmatrix} h & m & s \\ 0 & 9 & 32.8 \end{smallmatrix}$	$\begin{smallmatrix} s & s & s \\ 60 & 52 & 10 \end{smallmatrix}$	An extr F cluster with neb 5' diam. Several * s 15...18 m. Seen distinctly, but there is also unresolved neb.	178
86	16	Nova.	$\begin{smallmatrix} h & m & s \\ 0 & 12 & 21.6 \end{smallmatrix}$	$\begin{smallmatrix} s & s & s \\ 68 & 34 & 46 \end{smallmatrix}$	F; S; R; p s b M; 15"	166
87	17	Nova.	$\begin{smallmatrix} h & m & s \\ 0 & 12 & 32.1 \end{smallmatrix}$	$\begin{smallmatrix} s & s & s \\ 68 & 29 & 16 \end{smallmatrix}$	E; perhaps bicentral; makes trapezium with three B stars...	166
77	18	Nova.	$\begin{smallmatrix} h & m & s \\ 0 & 13 & 36.8 \end{smallmatrix}$	$\begin{smallmatrix} s & s & s \\ 61 & 11 & 30 \end{smallmatrix}$	F; R; g b M; 15"	178
95	19	II. 257	$\begin{smallmatrix} h & m & s \\ 0 & 13 & 37.2 \end{smallmatrix}$	$\begin{smallmatrix} s & s & s \\ 80 & 27 & 49 \end{smallmatrix}$	v F; p L; R; g b M.	15
103	20	Nova.	$\begin{smallmatrix} h & m & s \\ 0 & 16 & 0.2 \end{smallmatrix}$	$\begin{smallmatrix} s & s & s \\ 29 & 36 & 39 \end{smallmatrix}$	A p S, p compressed cl; 3' diam at 11...18 m in 2 or 3 principal branches. If this be VI. 35, there must be a mistake in my father's obs or mine of 6" in Δ R.	216

	No.	Synonym.	AR 1830.0.	N.P.D. 1830.0.	Description and Remarks.	Sweep.
108	21	III. 148	$\begin{smallmatrix} h & m & s \\ 0 & 17 & 5.4 \\ & & 5.8 \end{smallmatrix}$	$\begin{smallmatrix} 61 & 43 & 52 \\ & 43 & 46 \end{smallmatrix}$	Not v F; p L; R; b M; 40". Seen in moonlight p B; R; p s b M; 20"	114 178
110	22	Nova.	0 17 36.6	19 33 2	A v loose, p rich cl; s s 9...12 m; s 9 m in M taken	378
125	23	III. 869	0 20 6.5 9.0	88 5 38 6 27	v F; S; close to a d s. The s p of two F; S; b M; n f a d s; the s p of two neb	95 93
129	24	VIII. 79	0 20 27.1	30 43 3	A s 9 m about M of a v L, coarse sc rich cl of s s 9...13 m which more than fills field.	213
128	25	II. 854	0 20 31.5 33.4	88 4 18 4 57	p B; 1 E in meridian; the n f of two B; E; b M; 20"	95 93
132	26	II. 855	0 21 27.3 27.8 28.7 ...	88 51 16 51 14 51 4 54 4.:	p B; R; b M; ζ , yet a p good obs e F; b M; has a s s 3' dist; pos $150^{\circ} \pm$ p F; R; 1 b M; 25"; a good obs Excess F ζ and haze. P D no reliance; much past meridian when taken, and wanting a great correction.	108 110 113 93
145	27	Nova.	0 23 5.8	96 5 43	F; p L; R; v g 1 b M; 30...40"; has a s 8.9 m, dist 5'; pos $75^{\circ} \pm$	186
146	28	Nova.	0 23 31.7	27 39 17	A loose cl; s s 11 and 12 m; 10' diam; place that of a double s (h 1033) whose AR is erroneously stated in my 4th Catalogue.	219
147	29	Nova.	0 23 53.3	42 26 30	v F; v L; irr R; 4...5' diam; loses itself insensibly; has a s 11 m in centre.	207
151	30	II. 478	0 25 26.2	100 38 31	v F; p L; E; v g 1 b M; 60"	310
154	31	III. 467	0 25 43.0	103 35 56	e F; S; R; 15 or 16"	373
160	32	III. 476	0 27 8.6	66 58 46	Has a s 7 m, 5' dist; pos of neb from s $195^{\circ} 5$	166
173	33	III. 871	0 28 28.6 29.2	88 57 23.1 59 59	e F; a doubtful observation v F; R; b M; 20". A star 11 m pos $225^{\circ} \pm$, dist = $80''$..	112 113
185	34	Nova.	0 29 13.5	5 36 24	Cl v L p Rich 150...200 st 10...18 m; more than fills the field	381
185	35	II. 707	0 29 33.1	42 35 56	p B; L; R; g b M; full 60" diam.	390
184	36	Nova.	0 29 58.5	29 52 27	Cl L; p rich; irreg R; 8' diam; straggling; s s 11...15 m ..	219
193	37	Nova.	0 30 17 $\pm$	87 35 0	v F; L; close to a s 15 m. AR by III. 595, which this precedes 25.5.	95
191	38	II. 479	0 30 22.2	99 56 21	v F; R; sky rather dull	310
192	39	III. 872	0 30 29.2 29.2 29.3 30.1 32.8	90 4 37 4 5 4 45 3 49 4 42	p F; p s b M; 25"	113
					The s p of two, and probably a third. Cloudy	112
					p B; p m E; b M; 40" l.	371
					F; R; b M; ζ , but certainly seen	108
					F; p L; R; b M.	110
194	40	II. 856	0 30 33.2	87 52 50	p B; S; R; b M.	95
196	41	II. 860	0 30 33.8 34.2 35.1 35.2	90 1 50 1 49 0 9 1 28	p B; R; b M; 30"	371
					F; R; p s b M; 30"	113
					F; ζ , but certainly seen; a stellar centre	108
					v F; R; 1 b M; 40"; the n f of 2; hazy	112
204	42	III. 595	0 30 42 $\pm$	87 37 $\pm$	p B; R; the f of 2. Δ AR = $25^{\circ} 5$; Δ PD = $2'$	95

OF NEBULÆ AND CLUSTERS OF STARS.

367

No.	Synonym.	R. 1830-0.	N.P.D. 1830-0.	Description and Remarks.	Sweep.
201	43 III. 873	$\begin{smallmatrix} h & m & s \\ 0 & 30 & 47.7 \\ & 50.7 \end{smallmatrix}$	$\begin{smallmatrix} 90 & 4 & 37 \\ & 5 & 30 \end{smallmatrix}$	v F; L; E; 60". The last of 3 on the parallel of the first .. v F; E; v g l b M; 60"	113 371
205	44 V. 18	0 31 8.1	49 14 45	p B; v L; m E; pos 160...170°; 15' 1; 7' br; a faint suspicion of a nucleus; C.	183
206	45 V. 36	0 31 10.7	50 11 30	A very large space filled with neb	180
210	46 II. 452	0 32 1.2	104 48 51	B; R; p s b M; 25"	307
		1.5	48 21	B; R; p g b M	373
		2.7	47 32	p B; R; p s b M; (a thick haze)	308
214	47 II. 209	0 32 30.4	65 25 47	p B; R; g b M; 25"	172
		...	26 15	p F; R; g b M; 20"	392
217	48 II. 480	0 32 59.2	100 56 56	not v F; S; g b M; 10...15"	310
216	49 III. 244	0 32 59.2	111 58 54	e F; 1 E, n f to s p	293
224	50 M. 31	0 33 26.3	49 39 40	The great nebula in Andromeda	180
221	51 M. 32	0 33 27.8	50 4 7	The companion of the great nebula. e B; p L; s b M to a * 10 m; 40"; a small star follows it 11" 5.	183
		.....	.....	Viewed. v B R; p s b M; 30"; a * 13 m follows 11" 0	180
225	52 VIII. 78	0 33 35.5	29 8 37	A fine L, loose cl; stars 9.10 m on a dark ground; no small stars. Place that of a D (h 1046).	219
226	53 Nova.	0 33 47.9	58 20 49	e F; S; R; has a * 13 m to s, dist 20"	106
233	54 III. 146	0 34 29.2	60 20 26	not v F; R; b M; 15"	177
		29.4	21 17	F; R; 1 b M; 30"; C, yet distinctly seen	114
244	55 III. 485	0 37 14.9	106 30 51	v F; S; R; has * 10 m 3' s	307
246	56 V. 25	0 38 30.5	102 48 36	v F; diffused neb involving stars	373
		31.2	47 57	A small constellation in a v diffused neb	308
247	57 V. 20	0 38 44.8	111 40 49	e F; v L; v m E; v g l b M; 10' 1; pos 172° 0. Has no B * in it, but a * 8.9 m at some dist n p.	293
251	58 III. 204	0 38 54 ±	71 19 40	v F; R; follows a * 6.7 m 40' and is 1 1/2' n of it. It is near 2 v * st. If this be III. 204, my father's P D is 5' wrong R by working list.	312
252	59 II. 609	0 38 55.4	63 18 17	F; R; b M. A coarse D * precedes	114
		57.5	18 5	p B; R; s b M; 15"	178
	54260	57.6	18 35	v F; R; b M; 15"	392
		57.7	18 51	p B; R; p s b M; 20"	172
252	60 II. 611?	0 39 3.4	63 18 6	Not v F; R; b M; 15". Query if not the same as II. 609	177
253	61 V. 1	0 39 11.7	116 12 55	A v L, m E, v B neb. (See figure 52.) Observed also in sweep 292, but no place taken.	306
255	62 II. 472	0 39 12.9	102 24 31	v F; L; R; g b M; 30"	373
257	63 Nova.	0 39 24.0	93 47 14	e F, (through fog.) Makes obtuse-angled triangle with 2 st ..	97
258	64 II. 621	0 39 24.4	93 42 32	F; E; 30" 1; barely seen through fog	96
261	65 III. 153	0 40 36.2	58 39 26	F; S; R; b M; has a * 8 m nearly s, 4 or 5' dist	104
		36.4	39 12	p B; p L; R; p s b M; has * 9 m, s f, dist 3'	100
		37.0	38 59	p B; E; b M; has * 7 m 3' 5 f, 4' s	106
		37.6	39 20	p B; S; R; b M; a * 8 m to s, dist 5'	102

No.	Synonym.	$\mathcal{A}$ 1850-0.	N.P.D. 1850-0.	Description and Remarks.	Sweep.
66	III. 463	$\begin{smallmatrix} h & m & s \\ 0 & 41 & 28.8 \\ & & 31.1 \end{smallmatrix}$	$\begin{smallmatrix} 96 & 7 & 37 \\ & & 8 & 3 \end{smallmatrix}$	Very doubtful; ζ No description.	40 186
67	II. 446	0 42 2.5	92 49 50	Not ν F; R; p s l b M; 30"; a * 8.9 m follows rather to Δ $\mathcal{A}$ = 5".5.	371
68	III. 955	0 42 7 $\pm$	99 35 1 36 0	F; S; R. $\mathcal{A}$ from my father's obs ν F; R; p g b M	310 315
69	III. 429	0 42 25.7	97 58 53	} A fine double neb.; the preceding only seen by my father. p B; S; s m b M. The f is ν F; S; R; pos = 60° (30° n f); dist of centres 40". The neb join at borders. } The prec p B; the foll ν F. They form a double nebula, which is described by my father only as an extended single one.	186
70	Nova.	0 42 28.0	97 59 13		187
71	I. 159	0 42 29.6	43 22 6	B; S; R; ν g l b M; 20". Approaching to planetary; makes a ν obtuse-angled triangle with 2 at 10 m.	390
72	III. 477	0 43 24.6	66 34 36 35 51.1	e F; R; has a * 15 m f dist = 30" e F; S; has a * near	166 172
73	III. 439	0 43 27.4	93 9 5 28.0 8 56	ν F; S; R; b M; seen, but hardly discernible Not e F; S; R; g b M	96 97
74	VI. 20	0 43 50.7	117 30 30	(nisi $\mathcal{A}$ = 44° 25'.7.) A fine rich, not ν comp L cluster	292
75	Nova.	0 44 14.9	58 26 49	e F; S; R. The faintest object imaginable; (night wonderfully clear.)	106
76	Nova.	0 47 25.7	78 50 39	A small cluster of p closely scattered stars	15
77	Nova.	0 47 53.2	92 41 15	p F; S; E; 15"	371
78	Nova.	0 48 18.3	60 38 30 18.8 37 46	p B; R; g b M; 10" F; ν S; R; b M; 6"	178 177
79	II. 210	0 48 33.4	60 34 57 34.3 33 45 35.3 33 54	p B; R; g b M; has * 9 m 45° s f, dist. 3' B; R; p s b M; 20" B; p L; g b M; 25"	114 178 177
80	II. 433	0 51 15.3	98 29 36 15.4 29 36	F; L; E; 50". Sky not very clear Not ν F; L; E; g l b M; has * 10 m 20° 5 f in the parallel..	186 187
81	III. 191	0 53 32.0	95 9 41 35.9 9 26	ν F; S Precedes by 1" 37' a star 8.9 m; a * 10 m between	96 97
82	II. 434	0 54 45.4	97 15 35 15 2 16 $\pm$	F; R; s b M, to * 13 m; 20"; a * 14 m 10° n f 20" dist F; S; r p B; R; 20"; hazy	187 40 186
83	Nova.	0 55 54.8	28 43 47	A small cl. 2' in diam. Place that of the D * h 1070 whose $\mathcal{A}$ in my 4th Catal is 2" wrong.	219
84	II. 215	0 57 52.6	58 23 50 54.0 23 55 54.2 23 46	p B; R p B; not ν S; b M F; R	100 106 104
85	II. 216	0 57 54.6	58 27 $\pm$ 56.0 25 55 56.2 26 11	p B; R p B; S; s b M F; p L; R; b M	100 106 104

No.	Synonym.	α 1830-0.	N.P.D. 1850-0.	Description and Remarks.	Sweep.
86	II. 217.	$\begin{smallmatrix} h & m & s \\ 0 & 58 & 0.2 \\ & & 1.6 \\ & & 3.5 \end{smallmatrix}$	$\begin{smallmatrix} 58 & 30 & \mu \\ 32 & \pm & \\ 29 & 55 & \end{smallmatrix}$	F; R; b M; 5 or 6' s of II. 216 p B; R. P D requires an uncertain correction, being taken much out of the meridian. p B; p L; g b M. p F; b M nearly to a *; between 2 stars F; S; R; s b M. It is bright 3 ^d or F 2 ^d class (sky perfectly clear), and = * 14 m. One of a group of 5 or 6 at 15 m. v F; v S; 1 E; g b M; 10". Allowing for the ϵ & c. this cannot be a 1 st class neb; no other near it.	104 100 106 102 188 183
87	II. 218	0 59 0.6	57 46 50	B; R; g b M; 30"	105
88	I. 54	0 59 0.6	51 15 8	p B; R; p g b M; 30"	166
		4.6	15 3	p B; S; R; b M.	102
89	II. 224	0 59 58.9	55 12 6	v F; R; s b M.	113
		59.5	11 41	No desc. Place estim from II. 447	113
90	III. 154	1 2 46.6	58 46 50	F; R; v s b M to a *	113
91	III. 592	1 4 9.2	91 12 44	A star 8 m the chief of a small loose cluster	213
92	III. 593	1 4 14.4	91 13 59	F; S; v s b M.	106
93	II. 447	1 4 19.7	91 8 59	v F; E; a * 9 m n p and a S * n f at the extremity of the nebula	106
94	Nova.	1 4 35.6	30 46 28	a D * 10 m, pos 324° 5, dist 12", in the midst of a p rich L cl which fills the field. The stars are 10 m; one of 7 and 1 of 8 m in the s f part.	213
95	Nova.	1 4 36.4	57 11 26	v F; e S; stellar.	106
96	Nova.	1 6 50.1	59 52 16	No description	95
97	VII. 42	1 8 33.1	32 34 8	e F; S; R; v g l b M; 15"; ϵ	183
		1 10 22.8	58 11 27	e F; p L; R; has a red * 7.8 m 45° s p	118
98	Nova.	1 10 23.9	87 34 48	v F; so that I had difficulty in finding it again when it had quitted the field.	100
99	III. 250	1 11 37.1	50 23 49	p B; L; R; b M; 30"	95
100	III. 577	1 12 13.7	83 52 32	B; L; s v m b M, and losing itself imperceptibly; r in centre with 320; * 7 m in parallel 1 st f.	300
101	Nova.	1 12 25.5	57 27 $\pm$	v F; E; has a D * to s	106
102	III. 156	1 12 57.7	85 37 58	v F; L; E; pos by diag 60° 0 $\pm$; l b M; 90" l	113
		58.2	37 51	p B; p L; R; through fog.	102
103	Nova.	1 13 23.8	57 42 47	p B; R; b M. N.B. nebulae numerous hereabouts	100
104	III. 594	1 13 27.2	89 56 36	It precedes III. 159 by about 10', and is half a field to the south of it	106
105	III. 158	1 13 38.5	57 26 20	p B; p L; b M	106
		39.5	26 9	e F; R	104
106	Nova.	1 13 56 $\pm$	57 46 $\pm$	v F; pos from III. 159 = 15° 0; dist = 2' $\pm$	106
107	III. 159	1 14 6.1	57 38 17	v F; v S	105
		8.7	37 56	F; S	105
108	III. 160	1 14 8.4	57 36 21	v L; irr R; v g l b M; by diagram at least 3' in diameter; a remarkable object. Is closely followed by the D * h 13; see fig 38.	15
109	Nova...	1 14 26.9	56 59 21	e F; L; R; 60"; has a * 9 m 20° s f, dist 100". (N.B. This place and the former description to be preferred.)	173
110	III. 160	1 14 53.5	57 5 56		
111	III. 160	1 14 53.5	57 5 56		
112	II. 252	1 14 58.4	77 59 19		
		63.0	57 57		

No.	Synonym.	R 1830.0.	N.P.D. 1830.0.	Description and Remarks.	Sweep.
113	III. 167	$\begin{smallmatrix} h & m & s \\ 1 & 15 & 4.5 \end{smallmatrix}$	$\begin{smallmatrix} 57 & 26 & 5 \\ & & 6 \end{smallmatrix}$	Precedes III. 168, and is 2' north	102
114	III. 168	$\begin{smallmatrix} 1 & 15 & 8.0 \end{smallmatrix}$	$\begin{smallmatrix} 57 & 28 & 5 \end{smallmatrix}$	p B; R;	102
115	II. 461	$\begin{smallmatrix} 1 & 15 & 43.4 \\ & & 51.7 \end{smallmatrix}$	$\begin{smallmatrix} 89 & 9 & 52 \\ & & 9.44 \end{smallmatrix}$	B; p L; R; b M. v F; R; b M. This or the R of sweep 110 mistaken 10'	110 113
116	III. 253	$\begin{smallmatrix} 1 & 15 & 46.5 \end{smallmatrix}$	$\begin{smallmatrix} 87 & 4 & 43 \end{smallmatrix}$	p B; E like a comet, pos $135^{\circ}0' \pm$; $60''$ 1	95
117	I. 151	$\begin{smallmatrix} 1 & 15 & 52.5 \end{smallmatrix}$	$\begin{smallmatrix} 81 & 21 & 17 \end{smallmatrix}$	v B; p L; R; p s b M; $60''$; 4 at near.	118
118	Nova.	$\begin{smallmatrix} 1 & 16 & 3.2 \end{smallmatrix}$	$\begin{smallmatrix} 56 & 10 & 58 \end{smallmatrix}$	p B; v S; s b M. The preceding of two	105
119	III. 556	$\begin{smallmatrix} 1 & 16 & 25 \pm \end{smallmatrix}$	$\begin{smallmatrix} 81 & 38 & 57 \end{smallmatrix}$	Not v F; L; R; b M. $40''$. R brought up from my father's obs not having been taken.	118
120	III. 171	$\begin{smallmatrix} 1 & 16 & 43.2 \end{smallmatrix}$	$\begin{smallmatrix} 56 & 11 & 28 \end{smallmatrix}$	p B; p L; g b M; the following of two	105
121	II. 462	$\begin{smallmatrix} 1 & 16 & 46.4 \\ & & 47.8 \end{smallmatrix}$	$\begin{smallmatrix} 89 & 7 & 33 \\ & & 7.30 \end{smallmatrix}$	Barely, but certainly seen; C	108
122	II. 463	$\begin{smallmatrix} 1 & 17 & 59.2 \\ & & 62 \pm \end{smallmatrix}$	$\begin{smallmatrix} 68 & 52 & 9 \\ & & 52.27 \end{smallmatrix}$	p F; R; p s b M; $30''$	110 113
123	III. 560	$\begin{smallmatrix} 1 & 18 & 0.4 \end{smallmatrix}$	$\begin{smallmatrix} 53 & 41 & 53 \end{smallmatrix}$	p B; S; E from p to f; b M; "has a granulated" (i. e. a resolvable) "appearance".	110
124	Nova.	$\begin{smallmatrix} 1 & 18 & 12.2 \end{smallmatrix}$	$\begin{smallmatrix} 28 & 35 & 19 \end{smallmatrix}$	v F; E; v g l b M; near a * 13 m.	188
125	Nova.	$\begin{smallmatrix} 1 & 19 & 29.1 \end{smallmatrix}$	$\begin{smallmatrix} 58 & 33 & 21 \end{smallmatrix}$	A fine rich cluster 5' diam; irreg fig; (windy)	216
126	E. 131	$\begin{smallmatrix} 1 & 21 & 58.9 \\ & & 65.7 \end{smallmatrix}$	$\begin{smallmatrix} 30 & 11 & 18 \\ & & 11.42 \end{smallmatrix}$	v F; S; R	106
127	Nova.	$\begin{smallmatrix} 1 & 22 & 6.1 \end{smallmatrix}$	$\begin{smallmatrix} 57 & 15 & 53 \end{smallmatrix}$	A fine cl; R; rich; rather coarse; 6 or 8' diam; stars 10...11 m. One of Struve's "acervi".	213
128	I. 100	$\begin{smallmatrix} 1 & 22 & 48.4 \\ & & 48.5 \\ & & 48.6 \end{smallmatrix}$	$\begin{smallmatrix} 97 & 44 & 18 \\ & & 45.13 \\ & & 44.48 \end{smallmatrix}$	The chief * in a cl VI or VII class 8' diam, which has one v red * near the middle; stars 9...12 m. v F; p L; g b M. B; R; p g m b M; $15 \dots 20''$	219 106 318
129	Nova.	$\begin{smallmatrix} 1 & 23 & 1.6 \end{smallmatrix}$	$\begin{smallmatrix} 91 & 48 & 7 \end{smallmatrix}$	B; R; g m b M; $60 \dots 90''$; between clouds and in thick haze. Must be v B in clear weather. v B; R; p s b M; $25''$. (Seen also sw 40, but no determination of the place obtained).	39 186
130	III. 431	$\begin{smallmatrix} 1 & 23 & 5.5 \end{smallmatrix}$	$\begin{smallmatrix} 97 & 46 & 8 \end{smallmatrix}$	v F; R; b M; $25''$	113
131	V. 17 } M. 33 }	$\begin{smallmatrix} 1 & 24 & 15.6 \end{smallmatrix}$	$\begin{smallmatrix} 60 & 13 & 9 \end{smallmatrix}$	v F; R; $15''$	318
132	II. 4	$\begin{smallmatrix} 1 & 24 & 23.9 \end{smallmatrix}$	$\begin{smallmatrix} 97 & 53 & 32 \end{smallmatrix}$	Enormously L; v g b M. The nucl taken; has * 12 m, n f the nucl. The diffused neb extends $15'$ s and as much nearly to n. It has irregularities of light, and even feeble subordinate nuclei and many small stars. Probably V. 17 is part of the diff neb of M 33.	177
133	III. 150	$\begin{smallmatrix} 1 & 24 & 36.2 \end{smallmatrix}$	$\begin{smallmatrix} 60 & 7 & 6 \end{smallmatrix}$	p B; R; a * 6 m follows $47^{\circ}5'$ and is $40''$ n.	40
134	Nova.	$\begin{smallmatrix} 1 & 25 & 41.6 \end{smallmatrix}$	$\begin{smallmatrix} 57 & 13 & 29 \end{smallmatrix}$	v S; almost uniformly B. Place by rough comparison with the nucl of M 33, with which its pos = $51^{\circ}1' \Delta P D = 6' 3'' \pm$.	177
135	III. 174	$\begin{smallmatrix} 1 & 26 & 11.1 \end{smallmatrix}$	$\begin{smallmatrix} 57 & 11 & 34 \end{smallmatrix}$	v F; p s b M. Stellar.	106
136	Nova.	$\begin{smallmatrix} 1 & 26 & 37.5 \end{smallmatrix}$	$\begin{smallmatrix} 57 & 28 & 43 \end{smallmatrix}$	p F; p s b M. Stellar, or like a star blurred.	106
137	II. 282	$\begin{smallmatrix} 1 & 26 & 48 \pm \end{smallmatrix}$	$\begin{smallmatrix} 98 & 12 & 0 \end{smallmatrix}$	p B; p L; b M; precedes a * $2^m 51^{\circ}0'$	102
138	III. 454	$\begin{smallmatrix} 1 & 27 & 16.7 \\ & & \dots \end{smallmatrix}$	$\begin{smallmatrix} 90 & 12 & 22 \\ & & 11 \pm \end{smallmatrix}$	p B; R; is s f a * 8 m distant $10'$	186
				v F; not v S; not b M	110
				The faintest thing imaginable	113

No.	Synonym.	$\mathcal{R}$ 1830-0.	N.P.D. 1830-0.	Description and Remarks.	Sweep.
139	I. 281	$\begin{smallmatrix} h & m & s \\ 1 & 27 & 22.9 \end{smallmatrix}$	$\begin{smallmatrix} h & m & s \\ 120 & 21 & 53 \end{smallmatrix}$	v F; R; 1 b M; 20". This is probably Mr. DUNLOP's No. 479, but one or the other $\mathcal{R}$ requires correction.	292
140	III. 471	$\begin{smallmatrix} h & m & s \\ 1 & 27 & 26.1 \end{smallmatrix}$	$\begin{smallmatrix} h & m & s \\ 100 & 52 & 50 \end{smallmatrix}$	e F; S; among 2 or 3 v F at very difficult	315
141	Nova.	$\begin{smallmatrix} h & m & s \\ 1 & 27 & 27 \pm \end{smallmatrix}$	$\begin{smallmatrix} h & m & s \\ 57 & 17 & \pm \end{smallmatrix}$	v F; R; another precedes, which must be III. 174. The $\mathcal{R}$ conjectural, and P D liable to some error.	100
142	M. 74	$\begin{smallmatrix} h & m & s \\ 1 & 27 & 34.8 \end{smallmatrix}$	$\begin{smallmatrix} h & m & s \\ 75 & 4 & 46 \end{smallmatrix}$	e F; 5' with a brighter mass = 1' in centre, and this again p s b M to a suspected *. Several v s at near.	319
		$\begin{smallmatrix} h & m & s \\ & 34.8 & \end{smallmatrix}$	$\begin{smallmatrix} h & m & s \\ & 5 & 17 \end{smallmatrix}$	B; L; R; p g b M; 90" diam; resolvable	173
143	Nova.	$\begin{smallmatrix} h & m & s \\ 1 & 28 & 26.0 \end{smallmatrix}$	$\begin{smallmatrix} h & m & s \\ 84 & 59 & 29 \end{smallmatrix}$	p B; S; R; p s b M; 15"	300
144	II. 283	$\begin{smallmatrix} h & m & s \\ 1 & 30 & 36.9 \end{smallmatrix}$	$\begin{smallmatrix} h & m & s \\ 98 & 22 & 33 \end{smallmatrix}$	F; v S; R; v g b M; 10"	318
		$\begin{smallmatrix} h & m & s \\ & 38.6 & \end{smallmatrix}$	$\begin{smallmatrix} h & m & s \\ & 22 & 18 \end{smallmatrix}$	p F; S; R; p s b M; 20"	186
145	VII. 46	$\begin{smallmatrix} h & m & s \\ 1 & 32 & 25.9 \end{smallmatrix}$	$\begin{smallmatrix} h & m & s \\ 28 & 58 & 17 \end{smallmatrix}$	A cluster of the 6th class, (i. e. very rich)	219
		$\begin{smallmatrix} h & m & s \\ & 26.3 & \end{smallmatrix}$	$\begin{smallmatrix} h & m & s \\ & 58 & 44 \end{smallmatrix}$	A fine rich cl; at 11....14 m; 3' diam; irreg fig; place that of the most comp part; one star 6.7 m, s f the centre, is ruddy.	216
146	Nova.	$\begin{smallmatrix} h & m & s \\ 1 & 32 & 45.9 \end{smallmatrix}$	$\begin{smallmatrix} h & m & s \\ 34 & 59 & 2 \end{smallmatrix}$	A D * (h 2070), the chief of a p rich loose cl; at 12 m....	386
147	II. 610	$\begin{smallmatrix} h & m & s \\ 1 & 34 & 42.8 \end{smallmatrix}$	$\begin{smallmatrix} h & m & s \\ 62 & 9 & 6 \end{smallmatrix}$	p F; S; R; p s b M	177
		$\begin{smallmatrix} h & m & s \\ & \dots & \end{smallmatrix}$	$\begin{smallmatrix} h & m & s \\ & 10 & \pm \end{smallmatrix}$	F; v S; R	181
148	Nova.	$\begin{smallmatrix} h & m & s \\ 1 & 34 & 57.6 \end{smallmatrix}$	$\begin{smallmatrix} h & m & s \\ 86 & 37 & 45 \end{smallmatrix}$	v F; R; 20"	300
149	II. 611	$\begin{smallmatrix} h & m & s \\ 1 & 37 & 51.3 \end{smallmatrix}$	$\begin{smallmatrix} h & m & s \\ 62 & 58 & 15 \end{smallmatrix}$	v F; R; 15"	392
		$\begin{smallmatrix} h & m & s \\ & 53.0 & \end{smallmatrix}$	$\begin{smallmatrix} h & m & s \\ & 57 & 51 \end{smallmatrix}$	not v F; S; E nearly in Mer; 15" C; 10" br	177
150	I. 157	$\begin{smallmatrix} h & m & s \\ 1 & 38 & 19.4 \end{smallmatrix}$	$\begin{smallmatrix} h & m & s \\ 63 & 25 & 20 \end{smallmatrix}$	Between two stars	181
		$\begin{smallmatrix} h & m & s \\ & 20.6 & \end{smallmatrix}$	$\begin{smallmatrix} h & m & s \\ & 25 & 40 \end{smallmatrix}$	e F; 1 E; sky not perfectly clear. Taken while looking for ENCKE's comet.	392
		$\begin{smallmatrix} h & m & s \\ & \dots & \end{smallmatrix}$	$\begin{smallmatrix} h & m & s \\ & 25 & 30 \end{smallmatrix}$	p F; E; v g l b M; pos n f to s p; between two stars; 6' l; 3 or 4' br	178
151	IV. 42	$\begin{smallmatrix} h & m & s \\ 1 & 40 & 4.0 \end{smallmatrix}$	$\begin{smallmatrix} h & m & s \\ 84 & 56 & 15 \end{smallmatrix}$	A * 9 m with a v F neb ray. A * 17 m p	95
		$\begin{smallmatrix} h & m & s \\ & 4.2 & \end{smallmatrix}$	$\begin{smallmatrix} h & m & s \\ & 56 & 16 \end{smallmatrix}$	A * 9 m with a v F narrow ray of neb; a most curious object. See fig 58.	300
152	II. 612	$\begin{smallmatrix} h & m & s \\ 1 & 40 & 22 \pm \end{smallmatrix}$	$\begin{smallmatrix} h & m & s \\ 63 & 12 & 35 \end{smallmatrix}$	v F; R; near a * 15 m. $\mathcal{R}$ per working list	392
153	Nova.	$\begin{smallmatrix} h & m & s \\ 1 & 40 & 42 \pm \end{smallmatrix}$	$\begin{smallmatrix} h & m & s \\ 79 & 9 & 19 \end{smallmatrix}$	e F; $\mathcal{R}$ may be a whole minute wrong	15
154	II. 501	$\begin{smallmatrix} h & m & s \\ 1 & 40 & 51.0 \end{smallmatrix}$	$\begin{smallmatrix} h & m & s \\ 105 & 48 & 56 \end{smallmatrix}$	v F; R; v g b M; 15"	307
155	III. 459	$\begin{smallmatrix} h & m & s \\ 1 & 40 & 57.7 \end{smallmatrix}$	$\begin{smallmatrix} h & m & s \\ 114 & 38 & 19 \end{smallmatrix}$	v F; R; g b M; 15" a * 8 m, s p. (N.B. Both this P D and that of sw 292 are open to much error.)	306
		$\begin{smallmatrix} h & m & s \\ & 59.4 & \end{smallmatrix}$	$\begin{smallmatrix} h & m & s \\ & 40 & 37 \end{smallmatrix}$	v F; R; makes obtuse triangle with 2 at 8 and 9 m nearly in merid and 6' asunder.	292
156	II. 859	$\begin{smallmatrix} h & m & s \\ 1 & 41 & 37.0 \end{smallmatrix}$	$\begin{smallmatrix} h & m & s \\ 84 & 42 & 7 \end{smallmatrix}$	p B; E; v g b M; a * 10 m, n f.	300
157	III. 562	$\begin{smallmatrix} h & m & s \\ 1 & 42 & 42.4 \end{smallmatrix}$	$\begin{smallmatrix} h & m & s \\ 54 & 40 & 58 \end{smallmatrix}$	v F; the n p of two, dist 90" $\pm$	105
158	III. 192	$\begin{smallmatrix} h & m & s \\ 1 & 42 & 45.0 \end{smallmatrix}$	$\begin{smallmatrix} h & m & s \\ 94 & 53 & 48 \end{smallmatrix}$	e F; 90" n of a * 11.12 m	96
		$\begin{smallmatrix} h & m & s \\ & 47.6 & \end{smallmatrix}$	$\begin{smallmatrix} h & m & s \\ & 53 & 38 \end{smallmatrix}$	e F; 1 E in Mer; has * 14 m 90" s	97
		$\begin{smallmatrix} h & m & s \\ & \dots & \end{smallmatrix}$	$\begin{smallmatrix} h & m & s \\ & 54 & 24 \end{smallmatrix}$	e F; R; the transit missed	39
159	III. 563	$\begin{smallmatrix} h & m & s \\ 1 & 42 & 49.4 \end{smallmatrix}$	$\begin{smallmatrix} h & m & s \\ 54 & 42 & 1 \end{smallmatrix}$	p B; p L; 1 b M; 40"	105
160	I. 62	$\begin{smallmatrix} h & m & s \\ 1 & 42 & 54 \pm \end{smallmatrix}$	$\begin{smallmatrix} h & m & s \\ 100 & 32 & 56 \end{smallmatrix}$	v F; R; v g v l b M. Aurora in sky even so far south, strong enough to illuminate the field of view and render the wires visible without a lamp.	310
161	II. 596	$\begin{smallmatrix} h & m & s \\ 1 & 42 & 56.8 \end{smallmatrix}$	$\begin{smallmatrix} h & m & s \\ 84 & 33 & 17 \end{smallmatrix}$	p B; 30"; a * 13 m 1 radius of neb dist from edge	300

No.	Synonym.	Δ 1850-0.	N.P.D. 1850-0.	Description and Remarks.	Swcep.
162	55 Androm.	h m s 1 43 8.6	s' " " 50 6 40	55 Androm. A fine nebulous * with a strong atmosphere losing itself imperceptibly; diam 90". It is also a double * h 1094; called "nebulosa" by PIAZZI.	183
163	Nova.	1 43 10.9	54 1 18	v F; R; among several p B stars	188
164	II. 270	1 44 22.9	86 38 10	p B; R; p s m b M; 30"	95
		24.4	38 32	B; R; p s b M; 25"	300
165	I. 105	1 44 44.7	104 34 27	v B; E; p s p m b M; 40" l; 30" br.	308
166	III. 460	1 45 49.8	114 35 22	not v F; R; v g b M; 30"; has a * 13 m 90", s.	306
167	Nova.	1 45 50.7	114 42 17	v F; p L; R; g b M; has a small * 75" s p. It is barely possible that this may be III. 460 with a mistake in reading the P.D.	292
168	Nova.	1 46 14.6	86 38 10	A suspected nebula.	95
169	II. 221	1 46 49.9	57 48 1	p B; has a S * or stellar neb to the n.	106
		50.1	47 38	p B; R; b M; has * 13 m n p.	100
		50.1	47 45	F; R; has a * near it.	102
170	Nova.	1 47 2.5	30 39 43	A D * in the f part of a L, poor, triangular cl of 15 or 20 st 10...13 m.	213
171	Nova.	1 47 9.0	35 22 7	p rich, irreg fig'd cluster of * s 11...13 m 8' diam.	356
172	II. 271	1 47 29.0	85 12 23	The prec and brightest of a fine double nebula; p F; R; p s b M; 20"; pos of the other = 102° 4.	300
173	II. 272	1 47 29.4	85 12 35	The f and fainter of a double neb; v F; R; s b M; 12".	95
174	VII. 32	1 47 39.6	53 10 8	An enormously L, p rich, sc cluster. Place that of a conspicuous *. The densest part is 10' n.	188
175	II. 222	1 47 43.6	57 38 35	p L; E; precedes a p B * by 18° 0	102
		...	40 ±	p B; R; Δ not taken; P D rough.	100
176	III. 193	1 47 48.9	95 18 9	e F; is 45° s f a * 9 m; $\Delta \Delta$ = 6° 0	96
		51.0	18 5	e F; 45° s f a *; $\Delta \Delta$ = 6° 25	97
177	III. 265	1 48 10.±	99 51 56	F; S; R. Transit missed; P D imperfect.	310
178	III. 464	1 48 25.6	96 14 0	e F	39
		26.1	14 18	F; l E; v g b M.	318
179	50 Cassiop.	1 49 6.2	18 24 27	I suspect this star to be nebulous.	378
180	Nova.	1 49 43.1	82 29 4	v F; S; R; 15...20"; a * 10 m 15" n p; 2' dist.	118
181	I. 112	1 49 59.5	71 49 6	p B; R; g b M; 40"	319
		61.6	49 0	L; R; through thick cloud. Obs so doubtful that but for the agreement of the transits over both wires I should not have believed I saw it.	312
182	II. 233	1 50 26.5	59 23 53	B; R; g b M; 40"; a considerable neb.	106
183	I. 101	1 51 8.6	96 47 47	B; E; b M.	39
		11.2	46 28	p B; p L; E; pos about 160° by diag.	40
		11.9	47 28	p B; n E; pos = 163° 0; b M to nucleus.	318
184	III. 583	1 51 10.1	62 35 18	e F; 3 st in Mer precede it; the largest 10 m is 20° s p the neb	177
185	II. 435	1 52 43.±	97 39 10	B; p L; R; b M. Transit missed; Δ by working list. Also observed sw 40, but no descrip, and place only roughly set down.	39
186	III. 433	1 52 50.4	96 11 53	F; p L; R; b M; 25"	318
		...	13 +	No descrip; taken much past merid.	39

No.	Synonym.	R 1850-0.	N.P.D. 1850-0.	Description and Remarks.	Sweep.
187	Nova.	h m s 1 53 2.0	^o ' " ^o ' " 73 6 22	e F; S; R; has a * 11 m 15° n f.	173
188	III. 207	1 53 10.8	72 26 41	F; S; R; g b M; 12"	319
189	III. 566	1 53 21.4	52 42 38	v F; R; a b M; near a *	188
190	III. 208	1 54 31.1	74 46 46	v F; not v S; g b M; follows * 10 m 3° 5	319
191	III. 151	1 55 12.1	61 49 31	v F; v S; 6"; has * 12 m, 1' n, and another about 20° s p	177
192	Nova.	1 56 3.7	114 6 42	v F; R; v g b M; 40"	306
193	I. 152	1 58 15.3	79 49 27	Not v B; R; s b M to nucl; has * 10 m s p, dist 55". PD by obs 78, but no doubt should be 79.	121
194	II. 604	1 58 30.9	52 3 1	p B; E	188
195	Nova.	1 59 12.5	76 27 37	F; R; b M; 15"	173
196	Nova.	1 59 34.5	116 15 37	A v F double * inclosed in a v F neb	306
197	II. 605	1 59 51.8	51 37 31	p B; R; g b M; 25"; has a D * 15' foll	188
198	III. 227	1 59 59.2	82 50 22	v F; R; b M; 20"	118
199	II. 482	2 1 1.6	100 56 10	v S; R; the first of a group of 4	315
		1 1.7	56 21.	F; S; R; the first of 4 in a crooked line.	310
200	II. 483	2 1 4.6	100 56 25	The 2nd of 4. It makes a double neb with the first.	315
		5.2	56 31	F; S; R; the second of 4 in a crooked line.	310
201	II. 484	2 1 19.5	100 57 6	F; S; R; the third of 4	310
		19.6	57 0.	The third in order and in size	315
202	II. 485	2 1 23.5	100 59 56	F; S; R; the last and largest of 4	310
		...	60 ±	Seen. Place estimated by the others	315
203	Nova.	2 1 25.9	98 33 43	v F; R; p s b M; 12"	318
204	III. 604	2 2 8.9	53 19 30	v F; irreg fig	188
205	III. 260	2 5 52.7	91 33 11	v F; R; b M	108
206	III. 457	2 6 32.2	84 48 1	e F; R; attached to and n p a * 11.12 m. Clouded before it could be fully verified.	300
207	VI. 33	2 7 8.2	33 37 3	The splendid cl in Perseus. A most noble group. Much more than fills field. 2 st 7 m, the rest 8...14; one of 7 m taken, at the circumf of an ellipse of stars.	213
		12.4	39 42	v superb cl. Has 2 st 8 m, the rest 11...13. Fills the field and has many stragglers. In centre is the D * h 1114 and an ellipse of stars.	387
208	III. 201	2 7 55.5	76 14 19	v F; E; has a * 10 m 4' s f	173
209	II. 474	2 8 14.2	102 8 57	F; R; fog thick. (N.B. The obs makes PD 104°, which must be a mistake.)	308
		16.7	8 1	p F; p L; R; v g b M; 60"; by a strange conflict of errors this obs makes the PD 101°. Both are obviously wrong.	310
210	II. 246	2 8 45.0	76 14 37	p B; R; p g b M; a small * s f; dist 1' and a * 9 m 5' dist nearly s, a little foll.	173
211	II. 436	2 9 45.1	97 25 49	e F; b M; hardly visible (cloudy)	39
212	VI. 34	2 10 0.7	33 37 13	A noble cluster which just fills the field. It is the following of the two great clusters in Perseus; loose, but more condensed in middle. The borders graduate away.	213
		28.6	41 12	A fine cl; v L; the foll of two clusters which are quite separate. A fine ruby * in the centre.	387

No.	Synonym.	Δ 1830-0.	N. P. D. 1830-0.	Description and Remarks.	Sweep.
213	Nova.	^{h m s} 2 10 21.1	^{74 57 21}	e F; R; g b M; 12"; near a * 16 m	319
214	Nova.	2 10 30.5	27 0 42	A coarse straggling cl; not v rich; 10 or 12' diam. Stars 9...13	221
215	II. 437	2 10 37.9	97 34 28	p B; R; g b M; 15"; a coarse D * in field.	318
		40.9	33 46	F; R; b M	40
216	III. 486	2 11 28.7	106 50 26	p B; R; p g b M; 25"	307
217	II. 225	2 11 53.0	57 31 40	p B; R; b M; 25"; bad fog	102
		54.7	31 6	B; R; p s b M	106
		55.2	30 54	p B (in spite of a fog); R; b M; 3 small st in a curve to s p	104
		56.5	30 57	p B; R; g b M; has 3 or 4 S at p in a curve	100
218	V. 19	2 11 58.3	48 25 8	An extr F ray 3' or 4' l; 40" br. Pos with mer = 23° 5 bad meas, the neb being too F to illuminate the wires.	389
		...	30 ±	Place hardly more than conjectural, being too late to get it on merid; v L; v m E; p F; has a chunk or dark division in the middle and two stars. Pos with merid 21° 2. A wonderful object. See fig 28.	182
219	II. 438	2 13 5.9	96 18 28	v F; v L; R; v g l b M; 90"	318
		...	20 ±	F; v L; b M; viewed much out of meridian	39
220	Nova.	2 16 4.3	58 31 48	v F; S; R; forms a semicircle with 4 at	106
221	Nova.	2 16 9.8	72 16 1	p F; L; R; 60"; n p a * 10 m dist, 3'	319
222	III. 177	2 17 8.2	57 11 46	v F; E; two at 13 m n p near	104
		9.1	11 31	p B; L; E; v g b M; among stars	100
223	IV. 23	2 18 57.6	91 54 29	v B; v L; R; p s m b M; 2' diam; fades away insensibly	108
224	III. 261	2 19 50.0	91 55 46	v F; L; R	108
225	II. 487	2 20 18.9	101 18 25	v F; cloudy. Doubtful obs	315
226	I. 154	2 20 29.0	83 37 59	B; E in merid; g b M; 30" long	188
227	Nova.	2 21 20.3	33 13 52	A p rich, p L cl; at 13...15 m; not comp at the centre. Fig an irregular parallelogram.	387
228	Nova.	2 21 32.4	46 7 43	p rich cl; 2 or 3 B and about 20 at 13...15 m; a star 9 m taken	389
229	II. 278	2 21 53.1	91 51 16	p B; S; E; b M	108
		...	51 ±	p B; S; E; p s b M	113
230	II. 237	2 22 8.1	93 42 2	p B; R; or irreg fig; b M	96
231	Nova.	2 23 56.8	57 48 47	S; R; p s b M. The first of 3	106
232	II. 211	2 24 2 ±	61 25 ±	p B; 1 E; p g b M. Δ from working list; P D uncertain	178
233	Nova.	2 24 13.3	57 48 17	v F; R; b M. The second of 3	106
234	Nova.	2 24 33.8	57 54 25	p B; R. Place by rough comparison with the first of the three	106
235	III. 572	2 24 40.5	49 55 25	v F; S; the preceding of two. Dist 3'; pos from the next = 337° 0.	182
236	III. 573	2 24 44.8	49 52 39	p F; S; 1 E	182
237	III. 161	2 26 33.8	57 25 11	v F; R; S; b M; 2 at 14 m n p point to it	104
		36.6	25 20	p F; R; S; p s b M	100
238	III. 557	2 27 6.8	79 6 32	p B; R; p s b M; 25"; Δ	121
239	III. 434	2 27 17.3	97 54 28	e F	318

No.	Synonym.	R 1830°.	N.P.D. 1830°.	Description and Remarks.	Sweep.
240	II. 238	$\begin{smallmatrix} h & m & s \\ 2 & 28 & 32.1 \end{smallmatrix}$	$\begin{smallmatrix} \delta & \epsilon & \eta \\ 49 & 51 & 49 \end{smallmatrix}$	p F; p L; 1 E	182
241	III. 152	2 29 10.4	60 35 40	p B; irreg R; b M; 18"; r. R doubtful	178
242	I. 156	2 29 46.4	51 40 39	v B; v m E; v s m b M, to a *. Lenticular; 5' long; pos by diagram 20° n f to s p. See fig 56.	188
243	II. 592	2 30 1.8	79 53 40	F; R; b M; 20"; has * 11 m 40° n f; 25" dist	121
244	I. 102	2 30 4.3	97 25 40.1	p b; p L; irreg R; 2' diam; r	38
		7.2	25 33	No description	89
		9.5	24 23	No description	40
245	III. 581	2 30 22.2	72 42 1.1	Doubtful obs. Clouded	319
246	II. 5	2 30 37.3	89 37 46	p F; R; b M; forms a trapezium with 3 st	108
		41.2	38 49	B; R; S; 1 E; forms a trapez &c.	113
247	III. 475	2 31 1.1	71 27 30	F; R; 1 b M; 15". R by working list	314
248	M. 34	2 31 6.1	47 56 43	Fine cluster; about 20 at 9 10... 11 m and as many less. Fills field, coarsely scattered. Place that of a D (h 1123).	389
		8.7	57 50	Poor; coarse; very badly seen through haze.	190
249	II. 284	2 31 7.4	98 52 13	p B; m E; has a * 17 m at the s f end.	318
		...	52 36	No description	310
250	Nova. Polarissima.	2 32 0	0 5 10	v F; R; g b M; 25"; has a * 11 m 2' s. This nebula is remarkable for its proximity to the pole. Owing to this the A cannot be determined exactly, and the P D is open to correction.	374
251	III. 228	2 32 0.5	81 59 57	v F; the p of two; a * 10 m, p in same line	118
252	III. 229	2 32 8.0	82 1 12	e F; the f of two.	118
253	II. 488	2 32 14.7	102 1 22	F; R; b M; 20"; fog	308
254	I. 63	2 32 41.3	98 59 36	B; irreg R; p g b M; r	310
		44.9	58 38	B; S; R; 20"; g b and p s b M to * 12 m	318
255	II. 633	2 32 48.9	53 24 9	p F; L; R; g 1 b M; 50"	188
256	III. 584	2 32 49.4	62 9 5	p B; S; R; p s b M; 12". R precarious.	178
257	III. 162	2 33 0.7	58 17 41	p L; R; has a red * 7.8 m 43° 5 p; fog. A p good obs however in R.	104
		1.8	16 32	p B; p L; b M	106
		3.1	20 ±	F; S; R. (Place not to be depended on)	100
258	I. 1	2 33 2.4	90 16 36	F; L; E; a p B * near	108
		3.6	17 29	F; p L; E 10° n f to s p; 2' long	113
259	Nova.	2 33 4.4	72 43 15	e F; hardly sure.	393
260	III. 163	2 33 35.7	58 15 22	v F; p L. The s p of two	106
261	Nova.	2 33 38.2	58 12 22	e F; S; the n f of two. Δ P D estim at 3'	106
262	M. 77	2 33 58.2	90 43 43	v B; not v L; R; p s b M; has * 2' dist 40° s f	108
263	II. 273	2 34 26.2	85 45 5	p B; R; g b M; 15"	93
264	I. 64	2 37 38.4	98 17 33	v B; L; E; 100" 1; 40" br; v g 1 b M	318
265	II. 466	2 37 43.7	91 13 34	F; p L; b M	107
266	II. 465	2 37 49.3	90 56 46	e F	108
267	III. 462	2 38 46.6	90 58 36	e F; R; is pointed to by 2 at n a l p the neb	108

No.	Synonym.	R 1830°0.	N.P.D. 1830°0.	Description and Remarks.	Sweep.
268	Nova.	$\begin{smallmatrix} h & m & s \\ 2 & 40 & 43.8 \end{smallmatrix}$	$\begin{smallmatrix} ^\circ & ' & '' \\ 49 & 2 & 39 \end{smallmatrix}$	Query whether a nebula or a knot of minute stars indistinctly seen.	182
269	III. 449	2 41 11.9	107 41 16	pB; pL; R; g b M; 40"	307
270	II. 601	2 41 48.8	48 29 54	vF; R; v g b M; 25"	182
271	II. 602	2 43 30.3	49 7 32	vF; R; v g l b M; 30"	182
272	III. 450	2 43 44.9	107 20 21	vF; S; R; g b M; 15"	307
273	Nova.	2 44 13.1	91 58 54	eF; pL; g b M; has * 8 m f	107
274	III. 580	2 45 32.7	47 38 48	vF; vS; R; g b M; 10"; makes isosc triangle with 2 at 15 m	389
275	II. 470	2 46 19.7	100 43 26	pB; S; R; nearly stellar	310
276	II. 274	2 49 19.3	87 18 28	F; S; R; s b M; 12"	95
277	II. 2397	2 49 56.2	45 47 43	F; R; g b M; 20"; follows the D * h 2167, 6" s	389
278	Nova.	2 50 54.1	48 5 59	eF; S; 5"	182
279	II. 620	2 52 7 ±	44 18 ±	vF; irreg. fig. Suspected to be only a few stars. A from working list; P D approx.	390
280	II. 502	2 53 35.7	105 30 21	pB; pL; R; p s b M; 40"	307
281	IV. 43	2 54 22.3	47 50 43	A star 14 m with some kind of faint nebulous appendage	389
282	II. 503	2 55 41.7	106 16 8	B; R; s b M; 40"	307
283	I. 109	2 56 45.6	116 42 53	B; R; p s b M; 30". My obs makes the P D 115°, but this must be a mistake, as my father has three observations agreeing in 116.	306
284	III. 578	2 57 25.4	52 16 29	F; vS; R; p s b M; 12"	188
285	II. 285	2 57 57.3	100 12 5	pB; irreg R; p s b M; 20"	315
		58.2	12 16	Not vF; S; R; v g v l b M	310
286	II. 504	2 58 6.2	106 15 44	vB; E; p s b M; 30" l; 20" br	307
287	Nova.	2 59 19.1	37 18 57	A vS, close-packed group of 8 or 10 at 14...15 m in a space of 30" diam, so as easily to be taken for a pB nebula.	386
288	III. 262	3 2 59 ±	93 12 ±	Scarcely seen through thick haze. A per working list; P D approx	96
289	II. 286	3 2 58.7	99 34 35	eF; R; a B * 9 m n p	315
		60.2	34 41	pB; R; night hazy and bad	310
290	VI. 25	3 3 3.1	43 24 16	A rich, L, cl not v comp; irreg R with stragglers; stars 12...15 m; brightest part 5' diam. The middle taken.	390
291	III. 591	3 3 8.7	99 36 50	eF; vS	315
292	Nova.	3 4 18.8	95 52 21	F; S; lE; has a * 9 m 5' dist nearly n	39
		19.3	51 50	vF; S; E; b M; 15" long	38
		23.3	51 39	F; R; b M	40
293	II. 603	3 8 34.6	49 6 49	pB; R; g b M; 40"	182
294	III. 574	3 10 25.8	49 18 22	eF; R; b M; the n p of 2. Pos from the following, which is the largest, 352° 4'; dist = 100".	182
295	III. 575	3 10 26.9	49 16 44	eF; b M; the n f of two	182
296	II. 287	3 11 43.3	96 52 0	pB; b M; r; 60"	38
		46.4	52 53	vF; R; g b M; 12"	318
		47.8	53 19	vF; R; E	39
		48.3	52 11	F; R	40

No.	Synonym.	$\mathcal{R}$ 1850-0.	N.P.D. 1850-0.	Description and Remarks.	Sweep.
297	III. 196	$h\ m\ s$ 3 16 16 $\pm$	$^{\circ}\ ' \ ''$ 93 37 $\pm$	The northern of two in same merid 96	96
298	III. 197	3 16 16 $\pm$	93 39 $\pm$	The southern of two. $\Delta P D = 2\frac{1}{2}'$ 96	96
299	III. 445	3 16 33.8; 37.4	96 20 0; 21 18	e F; irreg fig; scarcely discernible 36	36
300	III. 694	3 19 42.9; 47.4	18 0 23 0 52	v F; p m E; 20" l, 12 br 318	318
301	VIII. 88	3 20 45.4	53 15 56	No description..... 350	350
302	III. 446?	3 25 14.8	95 39 48	F; R; g b M; 15". Close to the D * h 2190 378	378
303	II. 288	3 28 36.1	95 35 40; 39.7	The chief * (10 m) of a cl of about 60 st which fills the field of view. 168	168
304	III. 263	3 32 42 $\pm$	91 50 $\pm$	v F; between a * p and a D * f 96	96
305	III. 569	3 33 3.0	95 13 $\pm$	No description. Clouded before obs could be completed 40	40
306	II. 455	3 33 12.2	95 14.46;	v F; L; R; 3'..... 38	38
307	II. 456	3 33 31.7	95 17 $\pm$	L; the faintest thing imaginable 96	96
308	VIII. 80	3 36 36.1	37 52 0	No desc. $\mathcal{R}$ from working list; P D approximate 107	107
309	I. 155	3 38 2.7	94 30 22	No desc. The first of 3 96	96
310	Nova.	3 51 30.9	37 50 57	R; n p a *. The second of 3 96	96
311	IV. 69	3 58 35.8	59 40 46	P D very doubtful 96	96
312	Nova.	4 9 47.0	53 80 21	p B; S; seen between clouds; has a B * 1' dist, 45° s f..... 39	39
313	III. 490	4 11 37.9	91 6 54	F; S 38	38
314	III. 587	4 17 54.6	94 1 12	A cl of about 20 st; place that of a superb D * (Σ 446); the rest 12 m. 384	384
315	I. 217	4 19 4.4	55 6 32	A D * Σ 446; the chief of a cl of 30 st more or less; 14...16 m... 386	386
316	II. 8	4 21 56.7	59 43 18	e F; R; has a * 17 m in middle 233	233
317	III. 587	4 17 54.6	94 1 12	A curious knot of stars forming a cluster in form the segment of an elliptic ring. 384	384
318	III. 587	4 17 54.6	94 1 12	A * 9 m with a dilute, F, equable nebulous atmosphere 60" or 90" diam. Other at 9 m have no such atm. A * susp n p. See Fig 31. 56	56
319	III. 587	4 17 54.6	94 1 12	A * 8 m with a fine atmosphere; diam 12' of time; perfectly nebulous and fading away to nothing; a F * following; strongly suspected to have a slight <i>chevelure</i> , but several 8 m near, not the least. 106	106
320	III. 587	4 17 54.6	94 1 12	The chief * of a v loose poor cluster 30' diam; l comp; stars 10...12 m. 399	399
321	III. 587	4 17 54.6	94 1 12	F; v S; a * 11 m s p 110	110
322	III. 587	4 17 54.6	94 1 12	F; p L; v g b M..... 107	107
323	III. 587	4 17 54.6	94 1 12	e F; among small stars 233	233
324	III. 587	4 17 54.6	94 1 12	B; visible in full (light; a * 9 m dist 3', 80° s p (afterwards corrected to n p. See Sw. 51). 42	42
325	III. 587	4 17 54.6	94 1 12	Place only taken. No descr. This obs makes the $\mathcal{R}$ 18 m, but this is an obvious mistake. 50	50
326	III. 587	4 17 54.6	94 1 12	p B; v L; irr R; it is inclosed among 6 stars, two of which point across its centre to a third. A * 7 m precedes about 1 m. 105	105
327	III. 587	4 17 54.6	94 1 12	A * 9 m is about 75° n p, not s p as in Sw. 42, and 2' dist .. 51	51
328	III. 587	4 17 54.6	94 1 12	The s p of a double nebula; R; p L; distance of centres 60" .. 107	107

No.	Synonym.	R 1830-0.	N.P.D. 1830-0.	Description and Remarks.	Sweep.
317	II. 9	^{h m s} 4 22 0.2	^s 89 42 40	The n f of the double nebula; F; S; R. Pos by a drawing made at the time 30...40° n f.	107
318	II. 7	4 22 0.9	89 31 14	p B; b M; E from s f to n p; has * 50° n f, 1' dist; its situation is nearly at right angles to the longer axis of the nebula.	110
		...	30 ±	p F; R; p L; has a * 45° n f, dist 90".	107
319	I. 158	4 23 14.8	95 26 0.1	F; R; b M; 40".	38
		15.8	27 29	F; R; b M; cloudy	39
		16.4	27 22	p B; R; b M; 18...20"	233
		18.4	27 22	p B; R; g b M; 15"; sky perfectly clear.	232
320	II. 524	4 27 36.8	93 30 28	No description; observation marked as doubtful	109
321	II. 514	4 27 52.2	90 29 39	v F; p L; irreg fig; 90"; has a coarse B double star n f.	107
		56.0	26 ±	v F; L; m E; 3' L; 90" br; v l b M. PD merely estimated by means of a star near it.	110
322	Nova.	4 28 38.0	93 39 33	v F; E; 45° n t s f; s b M; follows v Eridani 41° 0	109
323	III. 952	4 30 58.0	82 59 44	The n p of a double neb; F; has a * 8 m s p. Pos of the nebula about 65° s f by diagram.	119
		61.0	59 55	e F; p L; E towards the s f side, and has either a * or a second nucl s f.	118
324	III. 953	4 30 59.7	83 0 44	The s f nebula of the double neb	119
325	II. 515	4 31 29.7	90 53 19	v F; R; has a * 9 m about 12° s f to the n	107
326	II. 522	4 32 31.8	98 56 40	e F; R; v g b M; 30"	315
		...	56 58	No A observed; no description.	318
327	I. 122	4 32 55.7	93 11 48	B; v L; R; b M; 2' diam	109
		57.1	13 12	p F; L; nearly R; v g b M; 2' diam	233
328	III. 588	4 35 23.1	95 39 14	e F; irr R; b M; 10"	232
329	II. 523	4 36 15.0	98 50 43	p F; R; has a * 7 m, 3 or 4' dist n p	318
330	Nova.	4 37 32.3	95 27 44	e F; irreg fig, if not a double or triple star, seen indistinctly	232
331	III. 589	4 38 7.8	95 6 2	p F; v S; v l b M; 15"	233
332	VII. 1	4 39 5.6	79 22 40	A cluster of stars 11 and 12 m, three L and 5 small stars. Query if the right object.	121
333	II. 457	4 39 55.3	95 44 32	v F; p L; R	233
334	II. 527	4 44 1.8	93 23 50	p B; R; b M; has a * 7 m 45° s p; very well observed.	109
		2.9	24 2	p F; S; R; 12"; has a * 9 m dist 5' s p.	233
335	III. 453	4 45 33.6	88 38 55	e F; among v S stars; has one v L * s p	322
336	IV. 32	4 48 33.1	95 8 42	p B; R; like two or three stars 19 m with an atmosphere 60" diameter.	233
337	Nova.	4 49 9.8	37 22 45	v Loose; p Rich; fills field; the largest * 10 m; mixed magnitudes	327
338	Nova.	4 49 38.0	82 1 34	A resolved nebula or a small round group of very small stars, 30" diam.	118
339	Nova.	4 50 15.3	90 45 47	F; S; R; b M	110
		15.6	45 31	F; R; b M; the preceding of two.	107
340	Nova.	4 50 47 ±	90 31 ±	p B; R; p s b M; has a B * n f; the fol of 2	107
341	Nova.	4 51 30.4	98 1 3	F; R; about 30' n of a * 13 m.	318
342	III. 503?	4 53 28.4	93 33 12	e F; S; 4"; has a * 12 m n f.	233

No.	Synonym.	R 1630-0.	N.P.D. 1830-0.	Description and Remarks.	Sweep.
343	Nova?	$4^{\circ} 54' 16''.1$	$94^{\circ} 56' 20''$	A very large space affected with nebulous streams in zigzags up and down. (N.B. Such observations require several verifications. The opportunity has not occurred in this case.)	235
344	VIII. 61	$4^{\circ} 56' 34''.5$	$52^{\circ} 50' 56''$	A double * in a pretty close cluster of 20 or 30 stars.	399
345	III. 500	$4^{\circ} 57' 11''.7$ $13''.4$	$99^{\circ} 23' 20''$ $22^{\circ} 53'$	not v F; R; g p m b M; 25" p F; S; R	315 318
346	Nova.	$4^{\circ} 57' 50''.9$	$38^{\circ} 9' 40''$	A group of 8 or 9 stars 10 m, nearly in a parallelogram. A pretty object.	327
347	V. 32	$4^{\circ} 58' 24''.0$ $28''.2$	$93^{\circ} 34' 22''$ $36^{\circ} 45'$	A * 10 m with a neb s f; pos 138° 0 from *; the centre of the neb is like a misty * 12 or 13 m, or perhaps 2 or 3 st 15 m; a small * to the s of neb makes an isosceles triangle. Place that of the * 10 m. B; L; R; p s b M; diam 3'; has a * n p (about 45°) at the edge, if not involved.	233 235
348	Nova.	$5^{\circ} 0' 53''.9$	$73^{\circ} 42' 5''$	A cluster of 10 or 12 large and a good many small stars. The place that of a D *. It is perhaps an outlier of VII. 4.	395
349	VII. 4	$5^{\circ} 2' 11''.6$ $19''.3$	$73^{\circ} 28' 5''$ $34^{\circ} 6'$	L, rich cl; at 12...15 m; fills field. Place that of a D *. The most compressed part is 42° 5 foll the D * and 3' south of it. v L; p Rich; the prec border the brightest, consisting of st 10...12 m, but the foll the richest, consisting of st 12...18 m. Place of a * 10 m in prec border.	395 396
350	VII. 33	$5^{\circ} 8' 21''.9$	$50^{\circ} 50' 36''$	A * 7 m, very ruddy, almost orange-coloured, in a p rich cl of v s st.	399
351	Nova.	$5^{\circ} 14' 34''.2$	$56^{\circ} 46' 24''$	Rich coarse cl of sc at 9...15 m; more than fills field	51
352	II. 289	$5^{\circ} 14' 40''.3$	$101^{\circ} 39' 40''$	p B; R; r; 30"	315
353	VIII. 4	$5^{\circ} 15' 14''.\pm$	$61^{\circ} 0' \pm$	The most condensed part of a poor cl divided into two. It consists of 20 or 30 st 9...12 m.	115
354	VII. 39	$5^{\circ} 16' 41''.0$ $41''.9$ $44''.9$	$54^{\circ} 50' 36''$ $49^{\circ} 52'$ $50^{\circ} 11'$	Rich p comp cl s stars; roundish with straggling borders of larger stars. p Rich; irreg R; stars 9...12 m, 50 or 60 counted; b M; the place that of the most comp part. p Rich; scattered cl of * s 12 m, and some larger, the most comp part = 3' diam.	51 42 105
355	I. 261	$5^{\circ} 20' 7''.9$ $11''.3$ $13''.9$	$55^{\circ} 53' 54''$ $53^{\circ} 22'$ $53^{\circ} 41'$	A nebula including a triple star, forming an equilateral triangle; sides = 4"; stars = 11, 12, 14 m. See fig 49. A triple * in a neb. A most curious object (see description of the d * h 367 in my 2nd Catal.) The neb surrounds the stars like an atmosphere. A triple * in a neb &c. &c.	51 42 105
356	V. 38	$5^{\circ} 20' 34''.4$	$98^{\circ} 31' 18''$	All about this place there exists diffused nebulosity	318
357	M. 1	$5^{\circ} 24' 15''.7$	$68^{\circ} 6' 36''$	v L; E; v g l b M; r; 4' l, 3' br; pos of longer axis n p to s f. A fine object. See fig. 81.	59
358	M. 36	$5^{\circ} 24' 56''.5$ $65''.5$ $70''.4$	$55^{\circ} 57' 52''$ $59^{\circ} 24'$ $59^{\circ} 16'$	A coarse straggling cl which fills the field; a v pretty object; place B * in M. Rich; B; straggling stars; place of a D * h 368 whose place in my 2nd Catal is set down very erroneously by a mistake of copying. A considerable rich cl of L st 9...11 m; fills the field. The chief * is double.	42 51 105

No.	Synonym.	α 1830-0.	N.P.D. 1830-0.	Description and Remarks.	Sweep.
359	III. 865	$\begin{smallmatrix} h & m & s \\ 5 & 26 & 44.2 \end{smallmatrix}$	$\begin{smallmatrix} s & ' & '' \\ 58 & 7 & 57 \end{smallmatrix}$	F; R; S; p s b M.	106
360	* Orionis	$5 \ 26 \ 55 \pm$	$95 \ 30 \ 30 \pm$	Observed in sweeps 16, 38, 40, 110, 172, 173, 232...235, 309, 318, &c. See description and figure in Mem. Astr. Soc. 1826.	....
361	V. 31	$5 \ 27 \ 6.9$	$96 \ 2 \ 18$	* Orionis involved in a feeble neb 3' diam	318
362	Nova.	$5 \ 27 \ 7.4$	$94 \ 28 \ 10$	A coarse and poor but v splendid cl of L st; a beautiful object	41
363	V. 34	$5 \ 27 \ 35.3$	$91 \ 19 \ 3$	* Orionis. Place by Catal a v brilliant * involved in an immense nebulous atmosphere, whose n and s limits are $91^{\circ} 7' 29''$ and $91^{\circ} 31' 29''$. Viewed also and shown to Mr. DUNLOR in sweep 110.	107
364	Nova.	$5 \ 29 \ 42.5$	$34 \ 17 \ 57$	A poor cl of 8 or 10 st 11 m.	324
365	IV. 34	$5 \ 32 \ 47.6$	$80 \ 59 \ 57$	A circular disc $12''$, a little mottled and of a pale light; a little ill-defined, but not hazy; a planetary nebula.	118
		48.3	$60 \ 19$	Planetary neb a little indistinct at the edges; rather oval and perhaps of a mottled light.	121
366	VIII. 2	$5 \ 34 \ 47.5$	$81 \ 26 \ 37$	A large tract of stars filling many fields. It extends much further in α .	121
		...	$18 \pm$	VIII. 2 viewed. A L ill-defined tract of loose stars, neither rich nor condensed.	118
367	Nova.	$5 \ 35 \ 27.0$	$77 \ 11 \ 40$	A * 8.9 m with F neb	393
368	M. 78	$5 \ 38 \ 1.3$	$90 \ 0 \ 10$	Two stars $9 = 9$ m; pos 60° n f; dist $50''$ in a wispy nebula. See fig 36.	113
		2.6	$1 \ 59$	A v L wisp-shaped neb involving 3 st. It extends $5'$; terminating abruptly to n, but extending s f beyond the 3rd *.	107
369	M. 37	$5 \ 41 \ 8.2$	$57 \ 30 \ 56$	v fine L cl, all resolved into st $10 \dots 13$ m. It fills $1\frac{1}{2}$ field, but the straggling stars extend very far. There may be 500 stars.	52
		10.3	$29 \ 54$	Splendid cl st $11 \dots 15$ m; no unresolved neb; p comp but not m b M; fills field.	51
		10.8	$30 \ 20$	Irregular; not very rich; fills field	56
370	III. 510	$5 \ 44 \ 32 \pm$	$97 \ 30 \ 38$	v F; R; p s b M. α from working list; P D approximate.	318
371	VII. 24	$5 \ 45 \ 4.7$	$89 \ 39 \ 29$	The 2nd and brightest * of a poor straggling cl 10 or $12'$ long	107
372	VIII. 26	$5 \ 50.45.2$	$66 \ 42 \ 40$	About 40 or 50 st. The largest 8 m taken. The rest are $10 \dots 15$ m	59
373	Nova?	$5 \ 53 \ 50.8$	$100 \ 36 \ 25$	3 Monocerotis. I am sure this star has a F neb atm $2'$ or $3'$ diam. Eye-glass examined, not dewed.	315
374	Nova.	$5 \ 54 \ 2.8$	$84 \ 16 \ 53$	L; p rich; very scattered; place of * 10 m in M.	320
375	VI. 17	$5 \ 56 \ 59.2$	$65 \ 53 \ 46$	Rich; m compressed almost to nebosity; stars very small; irreg triangular figure.	59
376	Nova.	$5 \ 57 \ 36.5$	$38 \ 17 \ 51$	A poor cl $7' 1$, $3' 1$ br; about a dozen at 11 m	325
377	M. 35	$5 \ 58 \ 22.2$	$65 \ 39 \ 13$	a L, coarse, p rich cl of st $9 \dots 16$ m, which fills 2 or 3 fields, but chiefly one in which are about 100 stars.	58
378	IV. 44	$5 \ 58 \ 40.9$	$96 \ 11 \ 43$	A star 7 m with a p strong neb atmos.	318
379	VIII. 24	$5 \ 58 \ 51.2$	$76 \ 1 \ 34$	A pretty cluster of 20 or 30 st $10 \dots 11$ m with one 9 or 9.10 which is double (Σ 848).	393
380	VIII. 6	$6 \ 0 \ 36.5$	$85 \ 15 \ 48$	A fine cluster; coarse; p rich; place of a * 9 m.	320
381	IV. 38	$6 \ 1 \ 13.9$	$96 \ 18 \ 48$	The large star of a double star has a very strong nebulous burr	318
382	Nova.	$6 \ 2 \ 30.2$	$93 \ 29 \ 52$	A large loose straggling cl of 8th class. The place is that of a double star.	234

No.	Synonym.	Δ 1830-0.	N.P.D. 1830-0.	Description and Remarks.	Sweep.
383	IV. 20	$\begin{smallmatrix} h & m & s \\ 6 & 2 & 48.9 \end{smallmatrix}$	$\begin{smallmatrix} s & m & s \\ 96 & 11 & 33 \end{smallmatrix}$	A * 10.11 m has a very sensible nebulous burr, and 3 more are rather nebulous; others in the field are not so.	318
		51.3	12 10	A * 10 m with a v F atmos. Two others s p are free from such atmos. A very F neb suspected s p this object. (N.B. The obs gives Δ 24.8, but this is a manifest mistake of the wire which corrected = 51.3.)	235
384	VII. 25	$\begin{smallmatrix} h & m & s \\ 6 & 3 & 3.8 \end{smallmatrix}$	$\begin{smallmatrix} s & m & s \\ 84 & 31 & 38 \end{smallmatrix}$	A p rich, comp cl; one at = 9 m, 3 or 4 = 11 m, and many 12...15 m. Place that of the D * h 2288.	320
385	Σ . 885	$\begin{smallmatrix} h & m & s \\ 6 & 7 & 46.6 \end{smallmatrix}$	$\begin{smallmatrix} s & m & s \\ 83 & 57 & 43 \end{smallmatrix}$	The chief of a tolerably neat cl of L stars	320
386	VII. 20	$\begin{smallmatrix} h & m & s \\ 6 & 12 & 35.9 \end{smallmatrix}$	$\begin{smallmatrix} s & m & s \\ 97 & 13 & 49 \end{smallmatrix}$	Coarse scattered cl; irreg R; at 11...15 m	16
		40.0	13 38	Very pretty scatt cl 8...10' diam; p rich; stars = 11...14 m	318
387	Nova.	$\begin{smallmatrix} h & m & s \\ 6 & 15 & 0.0 \end{smallmatrix}$	$\begin{smallmatrix} s & m & s \\ 94 & 36 & 34 \end{smallmatrix}$	The first * 6 m of a coarse poor cl; at 11...12 m	234
388	VII. 26	$\begin{smallmatrix} h & m & s \\ 6 & 18 & 32.2 \end{smallmatrix}$	$\begin{smallmatrix} s & m & s \\ 99 & 33 & 26 \end{smallmatrix}$	A poor cl of v S stars; rather comp in M stars 12...15 m	309
389	VIII. 9	$\begin{smallmatrix} h & m & s \\ 6 & 20 & 0 \pm \end{smallmatrix}$	$\begin{smallmatrix} s & m & s \\ 73 & 12 & 35 \end{smallmatrix}$	A p rich v loose cl; fills 2 or 3 fields; not b M; at 10...13 m	395
390	VII. 5	$\begin{smallmatrix} h & m & s \\ 6 & 20 & 34.0 \end{smallmatrix}$	$\begin{smallmatrix} s & m & s \\ 83 & 3 & 22 \end{smallmatrix}$	Irreg fig ⁶ cl like a hollow triangle in the crowded part of Milky Way; at v S; 12...15 m; one star 10 m. The surrounding loose stars are all large.	116
391	VIII. 49	$\begin{smallmatrix} h & m & s \\ 6 & 21 & 24.5 \end{smallmatrix}$	$\begin{smallmatrix} s & m & s \\ 54 & 40 & 24 \end{smallmatrix}$	Hardly to be called a cluster	51
		38.2	42 0	A v coarse straggling cl 10' diam; 30 or 40 stars 10...15 m. A * 10 m taken, but one of 7 m precedes to the n.	124
392	VII. 2	$\begin{smallmatrix} h & m & s \\ 6 & 21 & 53.1 \end{smallmatrix}$	$\begin{smallmatrix} s & m & s \\ 84 & 56 & 28 \end{smallmatrix}$	The place of * 8 m in most comp part of a L, poor, but brilliant cl.	237
393	IV. 3	$\begin{smallmatrix} h & m & s \\ 6 & 23 & 17.1 \end{smallmatrix}$	$\begin{smallmatrix} s & m & s \\ 79 & 43 & 40 \end{smallmatrix}$	A * 11 m with a milky neb surrounding it, but chiefly on the sp side. The star is not sharp—not stellar, and the neb fades gradually away from the *; 70 or 80' diam; has a * 7 m 30" n f.	120
		20.1	43 30	A neb with nucl near the n f edge, which has not the sharpness of a *, but is dull and dead; = * 13 m; has a * 8 m 6" 55 foll ⁶ to n.	121
394	Nova.	$\begin{smallmatrix} h & m & s \\ 6 & 25 & 36.3 \end{smallmatrix}$	$\begin{smallmatrix} s & m & s \\ 94 & 56 & 40 \end{smallmatrix}$	Place of a * 8.9 m in foll part of a L p rich loose cl; irreg oblong fig; at 12...14 m.	235
395	VIII. 3	$\begin{smallmatrix} h & m & s \\ 6 & 25 & 40 \pm \end{smallmatrix}$	$\begin{smallmatrix} s & m & s \\ 81 & 30 & \pm \end{smallmatrix}$	A large tract full of stars; v rich; place from working list. Viewed	116
396	VIII. 50	$\begin{smallmatrix} h & m & s \\ 6 & 25 & 52 \pm \end{smallmatrix}$	$\begin{smallmatrix} s & m & s \\ 84 & 31 & \pm \end{smallmatrix}$	L, p rich; at small; place by working list	237
397	VII. 22	$\begin{smallmatrix} h & m & s \\ 6 & 26 & 47.5 \end{smallmatrix}$	$\begin{smallmatrix} s & m & s \\ 82 & 12 & 27 \end{smallmatrix}$	A p rich, S cl; irreg fig; at 11...15 m	118
398	VIII. 48	$\begin{smallmatrix} h & m & s \\ 6 & 29 & 31.1 \end{smallmatrix}$	$\begin{smallmatrix} s & m & s \\ 91 & 19 & 19 \end{smallmatrix}$	Very coarse; v poor; v straggling; the chief * 8 m taken	107
399	IV. 2	$\begin{smallmatrix} h & m & s \\ 6 & 29 & 51.1 \end{smallmatrix}$	$\begin{smallmatrix} s & m & s \\ 81 & 7 & 18 \end{smallmatrix}$	A * 11.12 m with a p B cometary tail. See fig 64.	120
		54.0	6 32	* 12 m with B cometic branch 60" l whose axis is 60" n p. The * is a little ill defined. The apex of the neb comes exactly up to *, but does not pass it.	118
		54.3	6 54	Cometic. Has a * 9.10 m 50" n f dist 2'	121
400	VII. 37	$\begin{smallmatrix} h & m & s \\ 6 & 30 & 51.0 \end{smallmatrix}$	$\begin{smallmatrix} s & m & s \\ 88 & 42 & 20 \end{smallmatrix}$	A great many sc et; and a strong suspicion of a more comp part —(thick haze).	322
401	$\left. \begin{smallmatrix} \text{15 Monoc} \\ \text{VIII. 5} \\ \text{V. 27} \end{smallmatrix} \right\}$	$\begin{smallmatrix} h & m & s \\ 6 & 31 & 36.8 \end{smallmatrix}$	$\begin{smallmatrix} s & m & s \\ 79 & 57 & 55 \end{smallmatrix}$	A * 5.6 m enveloped in a neb haze. Has about 15 or 16 small stars about it, one of which is a neat D * to s f. (N.B. This is a most remarkable object, being at once a close D *, a cluster and a nebulous star.)	120
402	Nova.	$\begin{smallmatrix} h & m & s \\ 6 & 31 & 59.9 \end{smallmatrix}$	$\begin{smallmatrix} s & m & s \\ 77 & 55 & 32 \end{smallmatrix}$	A poor cl 30 or 40 S at 12.13 m	393
403	VI. 21	$\begin{smallmatrix} h & m & s \\ 6 & 32 & 40.2 \end{smallmatrix}$	$\begin{smallmatrix} s & m & s \\ 62 & 52 & 2 \end{smallmatrix}$	The most condensed part of a p rich, p comp cl at 11...15 m; irreg fig; diam of most comp part = 3...4'; triangular.	115

No.	Synonym.	R 1890-0.	N.P.D. 1890-0.	Description and Remarks.	Sweep.
404	VI. 3	$\begin{smallmatrix} h & m & s \\ 6 & 34 & 56 \pm \end{smallmatrix}$	$\begin{smallmatrix} s & 16 & 3 \\ 85 & 16 & 3 \end{smallmatrix}$	Close cl of v small st; poor; twilight; preceded by a coarse cl of large ones.	237
405	VIII. 36?	6 35 0.9	86 23 13	Coarse sc cl; not v rich; place of * 9 m	320
406	II. 614	6 36 3.2	56 15 50:	F; S; b M; the southern of two	124
		5.5	16 9	F; forms a D neb with another exactly n	51
407	II. 615	6 36 3.2	56 13 50:	e F; v S; the northern of two	124
		5.5	14 39	e F; the northern of a d neb	51
408	VIII. 31	6 39 9.3	92 58 10	Loose Lirreg sc cl of about 100 at 9...15 m	41
		...	61 +	Viewed; p rich; v coarse; a few st = 9...10 m	235
409	III. 897	6 39 41 ±	56 19 24:	e F; the northern of two, 3 or 4' apart	51
410	III. 898	6 39 41 ±	56 23 24:	e F; the southern of two	51
411	M. 41	6 39 43	110 34 13	Coarse; fills field. The chief, 8 m, is red; a poor cl. (The place is estimated from a D * in the cl.)	236
412	Nova?	6 42 49.8	96 46 37:	A coarse cl; not v rich; 30 or 40 st; probably only an outlying portion of VIII. 39.	122
413	VI. 27	6 43 1.1	89 20 39	A D * in the chief group of a p rich coarse cl not v comp. Broken into 3 groups. The s p group is the richest. The P D mistaken 5' in reading off; corrected.	397
		3.9	20 50	The principal D * in a cl; p rich; irreg fig; not m comp	113
		...	20 ±	The brightest * (D h 740) of a fine cl; rich; not v comp; irreg fig.	107
		...	20 45	A fine rich cl 10' diam; irreg fig; place of a D star	322
414	VIII. 39	6 43 33.5	96 53 30	A v poor S cl; about a dozen at 11 m in a rich region	135
		36.0	53 43	Coarse; p rich; 15 or 20 st in middle, p comp; with stragglers which fill the field.	318
		37.7	52 27	Poor cl; 12 or 15 S stars, and 2 or 3 larger; place of the 2nd star 10 m in cl.	136
415	VI. 2	6 45 2.6	71 45 28:	A p L comp cl 5 or 6' diam; irreg fig; p g l b M; place doubtful from temporary instability of the zeros.	333
		18.2	48 53	P rich cl; acutangular, the acute angle precedes; the p side is bounded by a remarkably definite line; pos 223° 4'; at 14....16 m. See fig 91.	313
416	VIII. 51	6 46 19.8	96 59 19	Very poor cl; is only an outlier of VIII. 39, the st being more sc, less rich, and larger.	136
		...	.....	Viewed. Has no title to be called a cluster.	135
		...	.....	Viewed. An outlying portion of VIII. 39	318
417	VI. 18	6 47 46.3	96 59 18	No descrip	318
		48.7	59 25	A cluster, not v rich; 4' diam; irreg fig; at 12....13 m	133
		49.2	58 59	p rich; irreg R fig; at 13....16 m; strong twilight	136
418	VIII. 60	6 49 22.8	94 22 0	A sc cl of S stars, not rich	41
419	Nova.	6 49 27.1	79 31 10	A poor cluster. The largest star 10 m taken	120
420	Nova.	6 49 27.4	39 10 16	v F; doubtful	329
		32.4	10 50	e F; doubtful. (The agreement of the places dispels the doubt, and shows that a nebula really exists here.)	327

No.	Synonym.	α 1830-0.	δ 1830-0.	Description and Remarks.	Sweep.
421	II. 304	$6^{\text{h}} 51^{\text{m}} 27.0^{\text{s}}$	$97^{\circ} 33' 40''$	p B; R; S; r; among a multitude of stars	135
		28.7	33 33	p B; R	318
		30.5	32 45	F; S; R; has a * 13 m s, dist 60"	156
422	VII. 14	$6 51 42.6$	$103 28 16$	A v coarse loose cl of stars 8 or 9 m.	111
423	VIII. 1	$6 52 13.1$	$86 42 39$	Place of * 9 m in a v coarse straggling cl of 3 or 4 fields in extent. Only a rich part of the heavens.	239
		14.5	42 23	Linear cl of stars 11...13 m, forming a bent line nearly 15' long, terminated on the f side by a * 8 m whose place is that here taken.	237
424	II. 861	$6 52 37.6$	$39 10 46$	p B; R; p g b M; 15"; n p a * 8 m; pos about 30° s f; dist = 1 diam of neb from edge.	329
425	M. 50	$6 54 42.2$	$98 5 19.1$	Rich; comp; fills field; stars 10...15 m; place of a * 10 m in middle—a fine cluster.	16
		45.5	6 55	A L rather straggling cl 10...12' diam; at 11...15 m. The largest in M, taken.	135
		46.6	6 58	Superb cl; fills whole field; irreg R; stars 11...15 m; not comp in M; straggling stars extend over a circle 30' in diameter.	318
		49.4	6 2	A fine v L sc cl; has a red star 8.9 m to s of the more compressed part.	136
426	II. 734	$6 55 8.7$	$30 3 20$	e F; R; p s l b M; has a small group of st immediately p like the letter Y.	327
427	VII. 58	$6 55 16.0$	$88 41 39$	Fine rich p L cl; at 12...18 m; 10' diam. One * 11 m (place taken); straggling.	397
		32.1	38 55	The most comp part of a v L coarse sc cl. The stars 11...15 m. Towards the north they are 9, 10, and more coarsely sc.	322
			45 30	Rich L cl; fills field; at 14...16 m; not comp towards a centre.	113
428	IV. 25?	$6 56 8.7$	$101 4 16$	A D * whose L * is in centre of a v F neb which involves the s * also.	130
429	II. 735	$6 56 17.3$	$41 8 6$	v F. Among stars	329
430	II. 862	$6 56 30.3$	$39 33 26$	F; S; R; p s b M; 12".	330
431	III. 899	$6 56 35 \pm$	$54 37 \pm$	v F; R; b M; 30". α by working list	124
432	VIII. 40	$6 56 54.3$	$62 33 18$	A small cl of 10 or a dozen at 11...13 m in an ellipse	57
		56.3	32 52	A L coarse stragg cl of L stars. The part taken is a small oval group 90" diam in the following part.	115
433	II. 736	$6 58 8.3$	$39 33 26$	p F; R; g b M; 20"	330
		9.9	34 6	p B; p L; R; g b M; 25"; two s st p	329
434	II. 769	$6 58 24.2$	$70 57 38$	p B; p L; R; g l b M; 40". In a rich part of the heavens	333
435	Nova.	$6 58 38.1$	$95 21 59$	Very loose and straggling cluster	122
436	VII. 27	$7 1 49.9$	$98 21 13$	A poor straggling cl. Place of a D *	318
437	Nova.	$7 5 31.4$	$101 12 14$	A loose straggling cl. Place of a D *	129
438	VII. 16	$7 7 14.3$	$116 26 30$	Loose straggling cl; the p part is rather separated from the f, and more comp. Place that of 3 et in the f part.	317
439	VI. 6?	$7 7 22.1$	$75 55 52$	A p rich cl of v s stars; irreg; R; 5' diam; not b M; at 11...16 m.	393
440	VII. 12	$7 10 2.2$	$105 20 15$	A rich cluster of stars 10 m	111

No.	Synonym.	At 1830.0.	N.P.D. 1850.0.	Description and Remarks.	Sweep.
441	VII. 17	$7^{\text{h}} 11^{\text{m}} 40.1^{\text{s}}$	$114^{\circ} 39' 20''$	A L * 7 m in the centre of a beautiful cl 6' diam; not v comp; nearly R; not more comp in M; stars 11...14 m.	317
442	Nova.	12 32.5	97 15 8	Two S p close groups of p L at in the Milky Way, rather a remarkable cl.	318
443	Nova.	$7^{\text{h}} 12^{\text{m}} 55.1^{\text{s}}$	100 4 24	The p star (which is red) of a p rich S cl; fg irreg triangular; ≈ 15 m—in Milky Way.	129
444	II. 316	$7^{\text{h}} 14^{\text{m}} 49.1^{\text{s}}$	60 11 20	The sp of a curious B double neb or an elongated bicentral neb; nuclei approaching to stars 45° n f to sp $30''$ dist.	57
				A double neb close B S R * B M; pos 45° n f or a p—diam of centre $60''$. See fig 72.	115
445	II. 317	$7^{\text{h}} 14^{\text{m}} 50.9^{\text{s}}$	60 11 0	The n f of the double neb	57
446	Nova.	$7^{\text{h}} 17^{\text{m}} 20. \pm$	$55^{\circ} 51' \pm$	The first of four	128
447	III. 703	$7^{\text{h}} 17^{\text{m}} 25.5^{\text{s}}$	$55^{\circ} 50' \pm$	A v F neb; another neb s p; the 2nd of 4	128
448	III. 900	$7^{\text{h}} 17^{\text{m}} 47.5^{\text{s}}$	$55^{\circ} 51' 40''$	e F; R; b M; $20''$; the 3rd of 4	128
449	III. 901	$7^{\text{h}} 18^{\text{m}} 0.0^{\text{s}}$	$55^{\circ} 48' 18''$	v F; R; p a b M; $30''$	128
450	IV. 45	$7^{\text{h}} 19^{\text{m}} 7.7^{\text{s}}$	$68^{\circ} 45' 2''$	A * 8 m exactly in centre of an exactly R B atmosph $25''$ diam; the star is quite stellar, not a mere nucl. Another * 8 m distant $100''$, and about 85° n p has no such atmos.—A most remarkable object.—Fig 31 (IV. 69) will also represent this neb.	59
451	VIII. 367	$7^{\text{h}} 20^{\text{m}} 14. \pm$	$101^{\circ} 24' \pm$	A straggling portion of Milky Way	129
452	Nova.	$7^{\text{h}} 21^{\text{m}} 8.8^{\text{s}}$	$17^{\circ} 57' 55''$	A very loose sc cl of large stars, or a starry place	230
453	III. 19	$7^{\text{h}} 21^{\text{m}} 28.0^{\text{s}}$	$79^{\circ} 59' 58''$	e F; R; l b M; = * 15 m; has the f of 4 stars near it	123
		28.5	$60^{\circ} 15'$	e F; among several at $13...14$ m; one = 14 m is in the neb ..	120
		...	$59^{\circ} 15'$	Most excessively F	132
454	VII. 65	$7^{\text{h}} 21^{\text{m}} 34.2^{\text{s}}$	$103^{\circ} 37' 48''$	A S cl of v S stars among rich parts of the Milky Way	111
455	VIII. 37	$7^{\text{h}} 25^{\text{m}} 27.4^{\text{s}}$	$105^{\circ} 5' 2''$	A cl with 1 st 9 m; not rich	111
456	II. 821	$7^{\text{h}} 25^{\text{m}} 44.8^{\text{s}}$	$54^{\circ} 24' 10''$	Not v F; S; R; $10''$; nearly planetary; but a l hazy; v g v l b M	128
		...	$25' \pm$	A curious, almost planetary neb $10''$ diam R; light nearly equable; between 2 S st.	51
457	I. 218	$7^{\text{h}} 26^{\text{m}} 35.5^{\text{s}}$	$50^{\circ} 44' 57''$	p F; L; R; v g b M; $70''$; ζ ; a L * 8 m precedes $19^{\circ} 0$, and before that is a D *.	401
		...	.....	Viewed; not v B; L; p m E in parallel $2' 1.75''$ br; a * 7.8 m precede: $19^{\circ} 0$ and $15''$ to s, and preceding this is a coarse double *.	335
458	VI. 1	$7^{\text{h}} 28^{\text{m}} 18.7^{\text{s}}$	$68^{\circ} 3' 17''$	A p rich cl; irreg fg; $50...100$ st; $11...18$ m; $5...7'$ diam.	59
459	VII. 38	$7^{\text{h}} 28^{\text{m}} 46.4^{\text{s}}$	$104^{\circ} 6' 28''$	The chief * of a L, p rich, straggl cl. It is double	111
460	II. 822	$7^{\text{h}} 30^{\text{m}} 6.5^{\text{s}}$	$37^{\circ} 16' 50''$	v F; among s stars; one 8 m precedes at some distance	327
461	Nova.	$7^{\text{h}} 32^{\text{m}} 59.7^{\text{s}}$	$37^{\circ} 31' 50''$	v F; S; R; b M; diam $8''$	327
462	Nova.	$7^{\text{h}} 33^{\text{m}} 26.4^{\text{s}}$	$80^{\circ} 20' 45''$	e F; has * 15 m $90''$ dist 30° n p	123
463	M. 46	$7^{\text{h}} 34^{\text{m}} 1.6^{\text{s}}$	$104^{\circ} 25' 45''$	The brightest part of a v fine rich cl; stars = 10 m; which fills the field. Within the cl at its n edge is a fine planetary neb.	111
464	IV. 39	$7^{\text{h}} 34^{\text{m}} 1.6^{\text{s}}$	$104^{\circ} 20' 25''$	A planetary neb 3.75 (time) in diam. Exactly R of a F equable light. Has a v minute * a l n of centre. It is not b M nor fading away, but a little velvety at the edges. At the n edge of the fine cl M 46.	111

No.	Synonym.	At 1830°.	N.P.D. 1830°.	Description and Remarks.	Sweep.
465	Nova.	h m s 7 35 12.3	34 59 2	Four small stars in a semicircle, within whose concavity there is a F nebulosity, which I am pretty certain is real.	324
466	Nova.	7 37 25.7	114 16 59	A * 8 m followed by a poor cl of 18...20 st, 11...13 m....	317
467	Nova.	7 40 31.6	34 5 2	v F; R; v g b M; and losing itself imperceptibly.....	324
468	III. 479	7 42 46.0	80 1 15	A l group of S st which has a neb look, and perhaps there may be neb among them. No other near.	120
		46.0	0 50	A S group of st; with attention counted 5 with power 320°; form a neb group 20" diam.	123
469	Nova.	7 43 20.4	32 53 12	e F; R; the preceding of two	324
470	III. 836	7 44 14.6	32 52 42	F; R; 15"; the foll of two	324
		15.0	52 22	p F; R; 15"; n p a * 9 m which is 2 diameters of neb dist from its centre.	323
471	III. 830	7 44 51.4	36 41 35	p F; E, or has a v S * s p and a L * n f. Also query if not a v S * in centre.	327
472	IV. 22	7 45 25.5	115 57 29	A * 9 m with a W of st and nebulosity, or ? if not a v F neb about the stars—(no red colour seen).	317
473	II. 302	7 47 2.2	65 47 28	F; S; R.....	58
474	VII. 10	7 47 27.4	113 51 51	A cl p rich; v coarsely sc, 10...15' diam; perhaps 50 st....	317
475	III. 837	7 47 59.9	32 59 12	v F; R; g l b M; 15"	323
476	III. 750	7 48 30±	49 43 ±	Viewed by working list; p B even though there is enough to see the wires well. R; g b and then a b M; 20".	335
477	Nova.	7 49 3.4	62 31 17	v F; S; R; b M.....	115
478	III. 709	7 49 9.5	38 47 20	F; L; R; v g b M; 60". Among stars	327
479	VII. 23	7 49 28.1	119 36 24	A fine rich cl; L; stars 12 m and nearly equal; not m comp M about 3'; at the centre equally comp and thence looser.	316
480	VI. 37	7 51 50.1	100 19 34	The 1st * 11 m in the p part of a rich R p comp cl irreg fig; * 11...20 m, so as to be nebulous. The most comp part = 4' or 5' diam.	129
481	II. 554	7 51 57.2	73 49 35	F; R; 15". Pos of a * 12 m = 225°-5, dist = 60"	395
482	III. 605	7 52 57.7	66 8 31	v F; S; R	59
483	III. 512	7 53 8.6	80 7 15	p B; R; p a b M.....	120
		9.5	7 0	No descrip	132
484	III. 7	7 53 11.0	80 59 25	Follows 2 v S st; obs doubtful. Nearly missed obs, owing to the working list being much out in P.D.	123
		...	.....	Viewed; F; v S; rather E. 2 st s p. Seen also, but no descrip given, in Sw 132.	120
485	Nova.	7 54 54.0	31 44 52	p F; R; p a b M; s f a * 9 m dist 3'	323
486	III. 877	7 57 35.1	100 57 6	F; L; R; v g b M; 90"; among stars of the Milky Way.....	129
487	III. 752	7 58 10.7	71 41 26	e F; R.....	324
488	VIII. 30	7 58 40±	117 41 22	Cl p rich; v coarsely sc; fills field; at 10...15 m. At by working list.	317
489	II. 726	7 59 18.0	55 33 44	p B; R; b M; 40".....	51
		21.0	32 40	F; L; R; v g l b M; 80"	120
490	III. 840	7 59 27.4	33 50 22	p B; L; R; p a b M; diam 60" and very gradually fading away; has a * 8 m pos = 164°-3.	324

No.	Synonym.	R 1850-0.	N.P.D. 1850-0.	Description and Remarks.	Swep.
491	IV. 55	h m s 8 1 10.0	43 30 17	p F; R; 60"; very nearly uniformly B, but hazy at edges. It is a resolved globular cluster. Being a remarkably fine night, I see the stars; they are 20 m; a * 9.10 m is 40° s f dist 2'.	130
492	III. 710	8 2 14.1	40 25 6	Not v F; L; 1 E; v g b M; 90"	329
493	II. 719?	8 3 55.4	53 14 12	v F; R; a coarse d * p points to it. $\Delta R = 1^{\circ} 2'$	401
494	II. 627	8 4 17.2	68 8 19	F; S; R; has a * 8 m, 4' dist p	59
495	Nova.	8 5 10.7	31 41 27	p B; S; m E; pos in merid; p s m b M; 15" l, 6" br. A * 7 m follows.	323
496	VI. 22	8 5 18.7	95 14 40	Fine L, p rich, very straggling cluster of st 9.10 and 10.11 m. The straggling edges extend a full field either way. Place that of a D * in the most comp part.	235
		18.8	18 54	A superb cl which fills the whole field; st 9.10 13 m and none below, but the whole ground of the sky on which it stands is singularly dotted over with infinitely minute points. Place that of a B st, the s of two which point into the concavity of an arc.	234
		26.1	18 2	A cl of about 100 large st 10 and 11 m	21
497	II. 303	8 8 46.7	66 0 34	p B; R; b M	59
498	III. 256	8 9 11.1	88 43 19	v F; between a * 12 m, s f and one 16 m, n p, the former dist about 1 diam, the latter about $\frac{1}{2}$ diam from the edge.	397
499	III. 606	8 9 21.8	68 57 41	p F; R; p s b M, and then a feeble atmos 25"	334
500	III. 607	8 10 28.2	68 20 44	v F; S; R	59
501	II. 634	8 10 41.2	68 25 6	v F; S; R	59
502	VI. 32	8 12 1.8	119 13 1	A v loose straggling but p rich cl which fills the field, st 9 m and under; v l comp M. Some large st precede it.	316
503	VII. 64	8 12 11.1	120 8 +	A fine, p rich cl; stars 11 m pretty uniform 5 ... 6' diam. The chief stars make a zigzag line, the outliers extending 20'.	316
504	III. 753	8 15 16.9	69 8 2	v F; R; l b M; has a * 1' p	63
		20.0	7 43	v F; R; g b M; is 90" f a * 11 m, and many small at near; windy.	333
		...	7 16	v F; p L; v g b M; 40"	334
505	II. 315	8 16 52.7	63 29 23	p B; R; v s b M to a *; 20"	58
506	III. 599	8 17 48.7	67 58 0	v F; irreg fig; has a coarse D * 30° s p, 2' dist	59
507	III. 234	8 22 12.9	66 52 12	v F; S	59
508	Nova.	8 22 13.0	36 35 53	e F; S; R; n p a star (about 5° n p). The preceding neb of 2 ...	328
		22.1	35 10	e F; S; R; 8"; one or other of these R s is probably affected by an error of 10' in reading off the time.	327
509	III. 292	8 22 50.9	59 53 1	e F; doubtful obs, as at first the neb was hardly seen. Verified, but too late for a good R . In field with a D * which points rather s of it.	56
		57.9	53 31	e F; R; b M; 30". This R preferable	64
510	Nova.	8 22 51.4	36 38 13	F; S; R; about 40° s f a *	328
		55.1	39 30	v F; S; R; 12". The following and brighter of 2	327
511	Nova.	8 23 38.4	62 26 52	e F; a doubt remained; windy	115
512	II. 318	8 24 53.3	60 57 41	F; R; b M	64
		54.6	57 25	F; irr R; b M	57

No.	Synonym.	At 1830°0.	N.P.D. 1850°0.	Description and Remarks.	Sweep.
513.	IV. 35	h m s 8 25 34.4	105 34 5	A * 14 m with a fan-shaped brush 15" l to the s p side; the brush however judged by both Mr. DUNLOP (who saw it) and myself not to be in contact. A B * 6.7 m, n f.	111
514	II. 319	8 27 8.8 11.0 12.0	60 43 21: 43 14 43 2	v F. Clouded before P D could be well obtained p B; S; R; b M F; L; b M; 60...80".....	64 57 115
515	III. 257	8 27 15.9:	88 42 44:	Extremely doubtful, as I could not recover the object.....	397
516	VII. 63	8 30 15.6	119 21 12	A fine cl shaped like a flattened X. Stars 11...13 m; fills field, but the most comp part = 6' diam; p rich; not m comp M.	316
517	Præsepe.	8 30 25.1	69 26 23	Præsepe Cancri (M 44) is so very loose and straggling that it would only be noticed as a region rich in L stars;—so also described in Sweeps 59 and 63.	333
518	I. 204	8 31 24.7 27.1 28.0 30.7	39 12 31 11 36 10 58 10 50	p B; p m E; p s m b M; 30" l; 20" br B; S; E; p s b M; pos n p to s f..... p B; p m E; p s m b M, almost to a *; 30" l p B; E; S. A fog coming on	330 329 328 327
519	Nova.	8 32 50.3	93 31 36	A v F cl or r neb; g b M; 80", one * 17 m distinct; stars and nebosity; has 2 p B st s and one following.	234
520	I. 288	8 32 59.±	11 9 0	v B; 1 E, in parallel; p s m b M, to a nucl = a * 12 m; 30". Has a L * p and another f, at a considerable dist.	170
521	III. 49	8 33 9.8 12.1	75 6 43 6 24	F; R; b M; 12" Not v F; S; R; p s b M; 12"	395 243
522	II. 727	8 33 17.0: 23.0 24.4	54 41 24: 41 5 40 22	F; L; R; place badly taken F; L; R; r; 50...60"..... F; L; R; r.....	51 128 127
523	Nova.	8 35 13.0	35 30 22	e F; p s b M	324
524	Nova.	8 37 50.4	76 46 41	A neat cl of stars 9 and 10 m regularly arranged about a central one. (N.B. This is nearly the place of III. 50, but no neb was noticed.)	241
525	Nova.	8 38 14.8	42 19 9	The chief * of a coarse cluster	139
526	II. 80	8 39 39.4 40.8 41.4	70 18 42 18 13 17 46	p B; R; b M. Query if not bicentral v B; R; v s m b M to a *; a v F * follows..... v B; p L; p g m b M; a v S * s f almost involved.....	63 333 334
527	II. 48	8 40 18.4:	70 21 46	The faintest object imaginable, and discerned with the utmost difficulty. Sky perfectly clear.	334
528	VIII. 10	8 40 37.9 62.1 63.2 ...	77 67 21 61 30 59 51 60 5	A poor cluster of 4 or 5 large and a few sc s st The chief star 9.10 m of a place rich in stars..... A v coarse and poor cl. Place of a D *..... An insignificant cluster. No other near	242 120 241 123
529	III. 294	8 41 8.8	58 30 3	p B; R; v g m b M; 15"	56
530	I. 242	8 41 15.1 16.3	38 3 13 2 45	B; L; v s m b M to a * 10.11 m, but sharply defined. It is a neb * with a v F extensive nebosity. v B; v s m b M to nucl. Seen through thick fog; a L * s f dist 10' and 2 S st p near.	328 327

No.	Synonym.	α 1830-0.	δ 1830-0.	Description and Remarks.	Sweep.
531	M. 67	$8^{\circ} 41' 29''.4$ 49.6 68.4 75.9 ...	$77^{\circ} 32' 3''$ 33 47 34 56 35 2 34 13	Pretty rich cl of sc at 10....15 m 200 st, more or less; it fills field; at 11....15 m. It is preceded by a rich region of st 9....10 m. Superb cl very rich and brilliant; fills field; stars 9....15 m; straggling at edges and not very comp in M. 100 or 200 st coarsely sc 11....15 m A cluster. No further descrip	17 19 241 22 242
532	I. 200	$8^{\circ} 42' 5''.0$ 5.5 6.3	$55^{\circ} 57' 42''$ 57 25 56 0	v B; v L; m E; 45° n f to s p; g m b M; $5' 1''$; 40" br; windy v B; v L; g m b M; $5' 1''$; 50" br; E 45° (s p by diag) v B; v m E; pos 40° -9 by microm 4' 1'; 1" br; p g b M; 4 stars near	127 128 337
533	III. 712	$8^{\circ} 42' 53''.4$ 56.1	$40^{\circ} 12' 1''$ 11 56	v F; p L; R; $30''$; a * 12 m s f (one semidiam from edge) and one 13 m, n p. p F; R; g b M; $20''$	330 329
534	III. 831	$8^{\circ} 44' 57''.6$	$37^{\circ} 17' 13''.3$	v F; S; R; p s b M	328
535	II. 823	$8^{\circ} 44' 43''.6$	$38^{\circ} 0' 18''$	p B; m E nearly in merid; p s b M	328
536	II. 880	$8^{\circ} 45' 49''.6$	$92^{\circ} 25' 19''$	p B; S; E nearly in parallel between 2 st of 12 and 15 m, each half the length of the neb from the adjacent extremity. See fig 61.	21
537	IV. 66	$8^{\circ} 46' 33''.4$	$35^{\circ} 35' 7''$	A * 11.12 m with a p B fan-shaped neb appendage in which there seems to be one v F *. A curious object. See fig 65.	324
538	Nova.	$8^{\circ} 47' 2''.6$	$92^{\circ} 32' 49''$	v F; R; r; $30''$; stars suspected in it. A * 9 m precedes. This may possibly be II. 281 with an error of $10'$ in PD, but I have no reason for believing my obs erroneous.	20
539	Nova.	$8^{\circ} 47' 17''.\pm$	$10^{\circ} 8' \pm$	p B; S; E from n f to s p. Has a * n f.	171
540	Nova.	$8^{\circ} 48' 1''.8$	$44^{\circ} 26' 37''$	p B; L; E; v g b M; $2' 1''$; $1\frac{1}{2}''$ br; with attention a central point is seen = a * 18 m.	139
541	III. 540	$8^{\circ} 49' 32''.1$	$53^{\circ} 37' 12''$	A strong suspicion of a neb, but clouds prevented verification..	331
542	II. 557	$8^{\circ} 49' 48''.\pm$	$83^{\circ} 0' \pm$	F; p L; R. α from working list, and P D hardly more than con- jectural.	116
543	II. 529	$8^{\circ} 50' 28''.9$ 29.7	$94^{\circ} 14' 10''$ 15 6	v F; R; v g b M; p L; $60''$ p F; R; v g b M; $25''$	235 234
544	Nova.	$8^{\circ} 51' 13''.3$	$53^{\circ} 35' 47''$	e F; S; R	401
545	II. 834	$8^{\circ} 51' 28''.3$	$29^{\circ} 23' 47''$	e F; R; quite certain.....	404
546	Nova.	$8^{\circ} 52' 31''.3$	$92^{\circ} 43' 19''$	v F; L; R; b M.....	21
547	Nova.	$8^{\circ} 53' 0''.\pm$	$93^{\circ} 3' 54''$	e F; R. α between 52° - 31° and 54° - 41°	21
548	Nova.	$8^{\circ} 53' 34''.4$	$12^{\circ} 49' \pm$	p B; p L; E; v g l b M; $90'' 1''$; 40" br.....	171
549	Nova?	$8^{\circ} 53' 56''.4$	$37^{\circ} 34' 23''$	Four small st with a strong suspicion of nebula among them..	328
550	I. 249	$8^{\circ} 54' 2''.7$	$28^{\circ} 51' 20''$	v F; p L; R; v g b M; $60''$; $\ll$ α * 8 m n p.....	404
551	III. 60	$8^{\circ} 55' 1''.4$ 1.8	$70^{\circ} 53' 2''$ 51 56	v F; R; has a double * to n..... v F; is s of a coarse double *	63 334
552	III. 825	$8^{\circ} 55' 21''.2$ 21.8 22.5 23.4	$53^{\circ} 56' 35''$ 56 27 56 45 57 27	Near a *, but doubtful	337
				e F; has * 12 m 45° ... 50° n p; dist $60''$	401
				e F; R; v g l b M. A * 11 m 75° n p; $40''$	128
				e F; S; s of a st 12.13 m	127

No.	Synonym.	At 1830-0.	N.P.D. 1830-0.	Description and Remarks.	Sweep.
553	II. 828	$\begin{smallmatrix} h & m & s \\ 8 & 56 & 40.4 \end{smallmatrix}$	$\begin{smallmatrix} h & m & s \\ 35 & 28 & 17 \end{smallmatrix}$	pB; pL; lE; vglbM	324
554	III. 647	$\begin{smallmatrix} h & m & s \\ 8 & 57 & 38.4 \end{smallmatrix}$	$\begin{smallmatrix} h & m & s \\ 51 & 41 & 37 \end{smallmatrix}$	pF; R; S; but not nearly so F as II. 825, which precedes it in the sweep.	401
555	I. 250	$\begin{smallmatrix} h & m & s \\ 8 & 58 & 19.3 \end{smallmatrix}$	$\begin{smallmatrix} h & m & s \\ 29 & 16 & 31 \end{smallmatrix}$	pB; lE; p s b M; 50" l, 45" br	404
556	Nova.	$\begin{smallmatrix} h & m & s \\ 8 & 58 & 22.8 \end{smallmatrix}$	$\begin{smallmatrix} h & m & s \\ 38 & 55 & 31 \end{smallmatrix}$	cF; s b M to a * 15 m; the first of 3	330
557	III. 236	$\begin{smallmatrix} h & m & s \\ 8 & 58 & 32.7 \end{smallmatrix}$	$\begin{smallmatrix} h & m & s \\ 67 & 52 & 22 \end{smallmatrix}$	No description	59
558	II. 520	$\begin{smallmatrix} h & m & s \\ 6 & 58 & 42.8 \end{smallmatrix}$	$\begin{smallmatrix} h & m & s \\ 85 & 53 & 30 \end{smallmatrix}$	vF; pL; g b M, but not to a nucleus	238
559	Nova.	$\begin{smallmatrix} h & m & s \\ 6 & 58 & 43.7 \end{smallmatrix}$	$\begin{smallmatrix} h & m & s \\ 38 & 54 & 1 \end{smallmatrix}$	Not cF; lE; bM. The second of 3	330
		$\begin{smallmatrix} h & m & s \\ & 45.3 & \end{smallmatrix}$	$\begin{smallmatrix} h & m & s \\ & 53 & 16 \end{smallmatrix}$	Not vF; lE; S; p s b M; 15"	329
560	II. 275	$\begin{smallmatrix} h & m & s \\ 6 & 58 & 49.0 \end{smallmatrix}$	$\begin{smallmatrix} h & m & s \\ 104 & 49 & 14 \end{smallmatrix}$	cF; pL; has a small * just n, and four more preceding	111
561	Nova.	$\begin{smallmatrix} h & m & s \\ 8 & 58 & 52.2 \end{smallmatrix}$	$\begin{smallmatrix} h & m & s \\ 38 & 57 & 21 \end{smallmatrix}$	vF; R or v l E. The last of 3 S neb	330
		$\begin{smallmatrix} h & m & s \\ & 54.1 & \end{smallmatrix}$	$\begin{smallmatrix} h & m & s \\ & 57 & 6 \end{smallmatrix}$	vF; S; lE; 10"	329
562	II. 490	$\begin{smallmatrix} h & m & s \\ 8 & 59 & 3.5 \end{smallmatrix}$	$\begin{smallmatrix} h & m & s \\ 56 & 11 & 20 \end{smallmatrix}$	F; mE in direction 45° n p; 3' l, 1' br	128
		$\begin{smallmatrix} h & m & s \\ & 6.5 & \end{smallmatrix}$	$\begin{smallmatrix} h & m & s \\ & 11 & 24 \end{smallmatrix}$	F; E 75° n p... s f; 90" l, 30" br	51
		$\begin{smallmatrix} h & m & s \\ & 7.6 & \end{smallmatrix}$	$\begin{smallmatrix} h & m & s \\ & 11 & 7 \end{smallmatrix}$	F; L; mE; pos n p... s f... ..	127
563	Nova.	$\begin{smallmatrix} h & m & s \\ 9 & 0 & 55.5 \end{smallmatrix}$	$\begin{smallmatrix} h & m & s \\ 44 & 21 & 2 \end{smallmatrix}$	pB; vL; R; v g b M; r; 3' diam. C	139
564	I. 2	$\begin{smallmatrix} h & m & s \\ 9 & 1 & 14.8 \end{smallmatrix}$	$\begin{smallmatrix} h & m & s \\ 82 & 16 & 27 \end{smallmatrix}$	pB; R; g m b M	18
		$\begin{smallmatrix} h & m & s \\ & 17.9 & \end{smallmatrix}$	$\begin{smallmatrix} h & m & s \\ & 16 & 26 \end{smallmatrix}$	vB; R; p s b M; 2' diam; the hazy border perhaps extends further; r: ..	116
565	III. 61	$\begin{smallmatrix} h & m & s \\ 9 & 1 & 20.1 \end{smallmatrix}$	$\begin{smallmatrix} h & m & s \\ 71 & 37 & 42 \end{smallmatrix}$	vF; S; r. My MS obs makes the PD 70°, but my father's obs makes it 71°. Each relies on a single obs. Of course I prefer 71.	63
566	II. 546	$\begin{smallmatrix} h & m & s \\ 9 & 1 & 50.5 \end{smallmatrix}$	$\begin{smallmatrix} h & m & s \\ 54 & 17 & 34 \end{smallmatrix}$	pB; S; R; m b M; 20"	51
		$\begin{smallmatrix} h & m & s \\ & 51.1 & \end{smallmatrix}$	$\begin{smallmatrix} h & m & s \\ & 16 & 40 \end{smallmatrix}$	B; R; v s m b M; 20"	337
		$\begin{smallmatrix} h & m & s \\ & 52.7 & \end{smallmatrix}$	$\begin{smallmatrix} h & m & s \\ & 16 & 27 \end{smallmatrix}$	pF; R; b M; 30"	127
		$\begin{smallmatrix} h & m & s \\ & 54.0 & \end{smallmatrix}$	$\begin{smallmatrix} h & m & s \\ & 16 & 35 \end{smallmatrix}$	Not vF; R; p s b M; 25"	401
567	III. 825	$\begin{smallmatrix} h & m & s \\ 9 & 2 & 11.9 \end{smallmatrix}$	$\begin{smallmatrix} h & m & s \\ 54 & 22 & 31 \end{smallmatrix}$	vF; S; 7.5 following a S double *	337
568	I. 167	$\begin{smallmatrix} h & m & s \\ 9 & 3 & 4 \pm \end{smallmatrix}$	$\begin{smallmatrix} h & m & s \\ 49 & 16 & \pm \end{smallmatrix}$	Viewed. Found in place as determined by my father. No description.	335
569	I. 66	$\begin{smallmatrix} h & m & s \\ 9 & 3 & 25.1 \end{smallmatrix}$	$\begin{smallmatrix} h & m & s \\ 104 & 7 & 31 \end{smallmatrix}$	pB; E in parallel; p s b M; 60" l	111
570	I. 215	$\begin{smallmatrix} h & m & s \\ 9 & 3 & 39.8 \end{smallmatrix}$	$\begin{smallmatrix} h & m & s \\ 20 & 4 & 51 \end{smallmatrix}$	F; E in parallel; p s b M; 30"	377
571	I. 59	$\begin{smallmatrix} h & m & s \\ 9 & 4 & 44.4 \end{smallmatrix}$	$\begin{smallmatrix} h & m & s \\ 113 & 30 & 4 \end{smallmatrix}$	pB; R; g b M; 25"	317
572	Nova.	$\begin{smallmatrix} h & m & s \\ 9 & 6 & 19.4 \end{smallmatrix}$	$\begin{smallmatrix} h & m & s \\ 54 & 52 & 10 \end{smallmatrix}$	vF; R; has a D * 5' n; 1' p	128
		$\begin{smallmatrix} h & m & s \\ & 21.5 & \end{smallmatrix}$	$\begin{smallmatrix} h & m & s \\ & 51 & 15 \end{smallmatrix}$	vF; S; R	337
573	III. 296	$\begin{smallmatrix} h & m & s \\ 9 & 6 & 28.3 \end{smallmatrix}$	$\begin{smallmatrix} h & m & s \\ 58 & 24 & 28 \end{smallmatrix}$	The faintest conceivable	56
574	III. 832	$\begin{smallmatrix} h & m & s \\ 9 & 6 & 31.7 \end{smallmatrix}$	$\begin{smallmatrix} h & m & s \\ 36 & 46 & 48 \end{smallmatrix}$	A * with vF neb attached, in which is involved another * 10" dist.	328
575	III. 62 } III. 63 }	$\begin{smallmatrix} h & m & s \\ 9 & 6 & 38 \pm \end{smallmatrix}$	$\begin{smallmatrix} h & m & s \\ 70 & 20 & 33 \end{smallmatrix}$	A S F close double nebula. The individuals are 30" asunder. Place hardly more than conjectural in P.D. R by working list.	63
576	II. 868	$\begin{smallmatrix} h & m & s \\ 9 & 7 & 12.0 \end{smallmatrix}$	$\begin{smallmatrix} h & m & s \\ 23 & 2 & 43 \end{smallmatrix}$	vF; S; near a * 8 m	410
577	Nova.	$\begin{smallmatrix} h & m & s \\ 9 & 7 & 12.4 \end{smallmatrix}$	$\begin{smallmatrix} h & m & s \\ 69 & 5 & 56 \end{smallmatrix}$	vF; S; R; the n p of two, distant 8'	59
578	Nova.	$\begin{smallmatrix} h & m & s \\ 9 & 7 & 30.0 \pm \end{smallmatrix}$	$\begin{smallmatrix} h & m & s \\ 69 & 14 & 19 \end{smallmatrix}$	vF; S; R; the s f of two, distant 8'	59

No.	Synonym.	Δ 1850-0.	N. P.D. 1850-0.	Description and Remarks.	Sweep.
579	Nova.	$\begin{smallmatrix} h & m & s \\ 9 & 7 & 56.5 \end{smallmatrix}$	$\begin{smallmatrix} ^{\circ} & ' & '' \\ 28 & 50 & 33 \end{smallmatrix}$	F; pm E.	410
580	II. 505	$\begin{smallmatrix} 9 & 8 & 12.2 \end{smallmatrix}$	$\begin{smallmatrix} 105 & 35 & 52 \end{smallmatrix}$	p B; E to n f; p s b M; 60"	111
581	Nova.	$\begin{smallmatrix} 9 & 9 & 0.5 \end{smallmatrix}$	$\begin{smallmatrix} 55 & 33 & 25 \\ & & 33 & 0 \end{smallmatrix}$	c F; E.	337
				v F; it is the s p of two. The other is I. 113.	51
582	I. 113	$\begin{smallmatrix} 9 & 9 & 22.0 \end{smallmatrix}$	$\begin{smallmatrix} 55 & 32 & 24 \\ & & 23.0 \end{smallmatrix}$	B; R; b M.	51
				p B.	337
583	III. 627	$\begin{smallmatrix} 9 & 9 & 55.9 \end{smallmatrix}$	$\begin{smallmatrix} 49 & 59 & 46 \end{smallmatrix}$	p F; S; R.	335
584	I. 205	$\begin{smallmatrix} 9 & 10 & 14.0 \end{smallmatrix}$	$\begin{smallmatrix} 38 & 18 & 3 \end{smallmatrix}$	v B; v m E; v s m b M; pos 150.8; comes up to a nucleus, a star 10.11 m; has 2 st not involved 11 & 12 m, and a 3rd 10 m perp to axis of neb.	328
585	Nova.	$\begin{smallmatrix} 9 & 10 & 20.8 \end{smallmatrix}$	$\begin{smallmatrix} 105 & 45 & 43 \end{smallmatrix}$	c F; R; b M; precedes a * 8".5	111
586	III. 827	$\begin{smallmatrix} 9 & 10 & 22.1 \end{smallmatrix}$	$\begin{smallmatrix} 53 & 54 & 57 \\ & & \dots \end{smallmatrix}$	v F; not v S; R; 100"....120" s f a * 10 m	127
				Viewed. It is 1 field ($1^m \frac{1}{2}$) $\pm$ f a v B * 6.7 m.	128
587	III. 468	$\begin{smallmatrix} 9 & 12 & 5.8 \end{smallmatrix}$	$\begin{smallmatrix} 105 & 47 & 43 \end{smallmatrix}$	v F; L; E n f to s p; 1 b M. It is 9".5 in Δ preceding a * 11 m, and is S of the *.	111
588	III. 629	$\begin{smallmatrix} 9 & 12 & 25.9 \end{smallmatrix}$	$\begin{smallmatrix} 49 & 8 & 56 \end{smallmatrix}$	v F; S; R; has a * 10 m 2' dist prec. The first of 2.	335
589	III. 714	$\begin{smallmatrix} 9 & 12 & 26.6 \end{smallmatrix}$	$\begin{smallmatrix} 40 & 4 & 56 \\ & & 28.8 \end{smallmatrix}$	v F; p L; R; v g b M. The preceding of 2, making an isosceles triangle with the other and a star.	330
			$\begin{smallmatrix} & & 4 & 36 \end{smallmatrix}$	p F; R; p s l b M; 20". The s p of 2, making an isosc triang with a * 9 m.	320
590	III. 630	$\begin{smallmatrix} 9 & 12 & 29.4 \end{smallmatrix}$	$\begin{smallmatrix} 49 & 7 & 6 \end{smallmatrix}$	c F; p L; v g b M; the following of 2.	335
591	III. 713	$\begin{smallmatrix} 9 & 12 & 40.4 \end{smallmatrix}$	$\begin{smallmatrix} 40 & 2 & 1 \\ & & 41.7 \end{smallmatrix}$	p F; 1 E; v g b M; the foll of 2.	330
				Not v F; R; p s b M; 20"; the n f of 2, making isosc triang with a * 9 m.	329
592	I. 132	$\begin{smallmatrix} 9 & 13 & 14.6 \end{smallmatrix}$	$\begin{smallmatrix} 101 & 11 & 24 \end{smallmatrix}$	p B; R; 45"; p g m b M; almost to nucl.	129
593	I. 137	$\begin{smallmatrix} 9 & 13 & 53.5 \end{smallmatrix}$	$\begin{smallmatrix} 54 & 46 & 4 \\ & & 54.9 \end{smallmatrix}$	B; R; m b M; 40"; not resolved with 240.	51
			$\begin{smallmatrix} & & 45.40 \end{smallmatrix}$	B; R; p s m b M; almost to a nucleus.	128
			$\begin{smallmatrix} & & 55.5 \end{smallmatrix}$	v B; R; v s m b M, to a *; follows a * 7 m and is 3' S of it.	336
594	III. 520	$\begin{smallmatrix} 9 & 15 & 20.6 \end{smallmatrix}$	$\begin{smallmatrix} 99 & 42 & 26 \end{smallmatrix}$	F; extended between 2 stars 12 & 16 m.	129
595	III. 646	$\begin{smallmatrix} 9 & 15 & 24.3 \end{smallmatrix}$	$\begin{smallmatrix} 31 & 54 & 7 \end{smallmatrix}$	v F; p L; 1 E; v g l b M; 35" 1, 30" br.	323
596	I. 260	$\begin{smallmatrix} 9 & 16 & 10.8 \end{smallmatrix}$	$\begin{smallmatrix} 26 & 46 & 41 \\ & & 10.9 \end{smallmatrix}$	p B; R; p s b M; 20". Among stars.	411
			$\begin{smallmatrix} & & 46 & 52 \end{smallmatrix}$	p F; R; S; v g b M; 40"; a * 12 m follows. $\Delta \Delta = 16.5$; pos = 72.6.	404
597	II. 546	$\begin{smallmatrix} 9 & 16 & 26.0 \end{smallmatrix}$	$\begin{smallmatrix} 77 & 49 & 48 \end{smallmatrix}$	The bisection at $16^m 31.1$, $50' 33''$; dist of centres $2\frac{1}{2}'$ or $3'$	17
			$\begin{smallmatrix} & & 28.6 \end{smallmatrix}$	The preceding, brightest, and most condensed of two; both B; R; p s b M.	120
			$\begin{smallmatrix} & & 29.0 \end{smallmatrix}$	The p of a double neb, both R; g b M; 40"; dist from each other $90'' \pm$. The bisection observed at $\Delta R 16^m 32.0$; PD $77^{\circ} 50' 21''$	19
			$\begin{smallmatrix} & & 30.7 \end{smallmatrix}$	p F; S; R; p s b M; the n p of two. Pos of the other from this = $110^{\circ} 6$	242
			$\begin{smallmatrix} & & 32.1 \end{smallmatrix}$	v F; S; R; the n p of two. Pos of the foll $107^{\circ} 3$	241
			$\begin{smallmatrix} & & 32.2 \end{smallmatrix}$	The first and brighter of two.	123

OF NEBULÆ AND CLUSTERS OF STARS.

391

No.	Synonym.	R 1850-0.	N.P.D. 1850-0.	Description and Remarks.	Sweep.
598	II. 547	^{h m s} 9 16 33.6 35.0 35.7 35.7 36.1 36.2:	^{° ' "} 77 51 0 50 32 50 39 50 47 51 11 51 18:	The f and fainter of 2 p b; p s b M The f of a D neb. R; g b M; 40" F; R; g b M; the s f and larger of 2, pos from the 1st = 110° 6 The fainter of two 25° s f v F; S; R; the s f of 2 The f of a double nebula. See II. 546.	120 19 242 123 241 17
599	Nova.	9 17 59 ±	66 15 17	e F; v S; E in parallel; R very uncertain	59
600	III. 553	9 16 57.6	100 54 29	p B; p L; R; v g l b M; 80". The MS makes the PD 101°, but two agreeing obs of my father prove this to be a mistake.	129
601	Nova.	9 19 59.4	31 46 37	v F; R v g b M; 15"; has a coarse D * 7' s	323
602	III. 297	9 20 12.8 13.2	59 41 1 43 22	F; v s m b M to a * 12 m S; R; s b M; 20"; has a * s m 55° n f dist 3'. N.B. The working list very erroneous in P.D. An extraordinary difference in these obs.	56 115
603	III. 8	9 20 26.4	81 31 56	2 or 3 st and nebosity	116
604	I. 56 } I. 57 }	9 22 32.2 32.3 ...	67 45 5 45 45 47 ±	v B; v L; E; 3' long. An approach to a 2nd nucleus. See fig 70 An e F, R, neb. Appended n f to a v L, R, v B, one p s b M, but not to a *. I. 56 is v B; E; g b M; r. Long attention shows a v F, L, R, neb attached n f.	59 246 244
605	Nova.	9 22 57.5	23 18 23	e F; S; p s b M; 12"	412
606	II. 495	9 23 1.2 1.9	80 48 56 49 46	p F; S; 1 E. F; not v S; R; g l b M.	134 116
607	II. 506	9 23 38.0	105 59 36	F; b M; 1 E s f; 30"	111
608	II. 40	9 24 38.5	79 6 0	F; R; b M; 40"; the preceding of two	123
609	III. 513	9 24 56.3	79 8 30	v F; R; b M to a nucleus; 25"	123
610	II. 260	9 25 10.4 19.7	67 32 38 32 38	No description F; S; R. Seen also in Sw. 244 in its place by working list, but no place taken.	246 59
611	III. 298	9 25 36.4	57 33 2	F; R; v s b M almost to a *	56
612	III. 963	9 27 11.2	12 39 46	e F; has a coarse D * 3' following	414
613	Nova.	9 28 53.7 53.8	55 14 5 13 40	v F; v L; 1 E parallel to merid; v g b M; has a * 10 m following Not v F; L; R; v g l b M; 40"	128 337
614	III. 4	9 29 1.7 3.9	79 42 56 44 25 43 ±	Not v F; S; 1 E; p s b M e F; R. v F; R; v g b M; 30"	134 123 120
615	III. 519	9 30 3 ±	82 16 ±	e F; p L; v g b M. R by working list	116
616	IV. 63	9 30 4.5 6.3	30 23 37 22 48	S; R; v s v m b M, yet not to a nucleus p B; R; s m b M; almost to a *. Has a * 11 m 20° 0 p and 15 or 20" n. R very precarious.	323 404
617	Nova.	9 30 15.4	16 14 7	e F; has a * 13 m near	382
618	Nova.	9 30 38.0	20 37 19	F; R; p L; v g l b M; 40"; is s of a S group of st.	377
619	III. 315	9 30 47.4	16 15 37	v F; R; b M	382

No.	Synonym.	R 1830-0.	N.P.D. 1850-0.	Description and Remarks.	Sweep.
620	III. 541	9 30 56.1	53 20 57	F; pL; R; vglbM; 30"; has * 18 m 30" p.	331
621	Nova.	9 31 50.8	85 37 57	vF; R; gbM	18
622	I. 114	9 32 45.7	57 25 ±	B; vL; E; vglbM; 2' 1, 1½' br. PD estim.	126
		47.5	22 32	B; vL; vglbM; E; 2½' by 1½'	127
		47.8	22 30	vB; vL; 1st class rather E; 2'	337
		47.8	23 23	B; E; gbM; 60". The sp of two.	56
623	III. 751	9 32 57.1	52 58 27	vF; R; bM; filamentous (i.e. as if filaments hung round it; an effect probably of diverging lines of small stars, as in M 13. See fig of this last. This appearance therefore indicates its consisting of stars).	331
624	II. 491	9 33 0.2	57 17 0	pB; pL; E	128
		4.3	18 23	pB; R; gbM; 30"	56
		6.3	17 13	B; pL; 60"	337
		6.5	17 17	pB; R; vglbM; the n f of two	127
625	I. 285	9 33 4.2	21 16 13	B; vL; m E in pos = 332°-4; vglbM, 3' 1, 1' br; has several S at it, and one 12 m nearly at right angles to the axis of extension.	411
626	II. 275	9 33 16.8	88 53 45	pB; L; R; vglbM; 75"; r; well observed (and correctly reduced).	113
		22.4:	53 54	F; L; R; vglbM; 50". R approximate.	397
627	Nova.	9 33 20.2	57 12 54	F; the foll and most northern of 3	128
628	III. 527	9 33 30.3	97 49 20	cF; R; vlbM	136
629	I. 78	9 33 53.9	16 56 19	vB; R; pgmbM; 50"; has a * 13 m following 1' dist, exactly in the parallel.	382
630	I. 61	9 33 56.8	92 56 9	B; R; bM. A * 9 m precedes 3°-0, and is s of neb	21
631	III. 521	9 34 49.1	99 36 49	pB; R; pabM	129
632	III. 528	9 34 50.0	98 49 64	cF; pL; vglbM	136
		54.7:	50 29:	F; R; bM; a hurried and imperfect obs	129
633	III. 34	9 35 49 ±	78 14 ±	cF. R from working list; PD rough approx	123
		...	11 ±	vF; R; bM. PD only a rude approx	338
634	Nova.	9 37 14.2	67 11 53	F; vS; bM. The sp of two	59
635	III. 277	9 37 31.6	103 32 56	Not vF; R; bM; 30"	111
636	Nova.	9 37 36.4:	67 8 19	F; vS; R; bM. The n f of 2; pos 40° n f	59
637	III. 278	9 37 38.1	103 35 11	pF; R; bM; 25"	111
638	II. 717	9 38 7.3:	45 7 12:	pB; irreg R; bM; r.	139
639	V. 26	9 38 27.5	55 47 59	A singular curved wisp of nebula. It curls up and tapers off at the sp side, and is clubbed at the n f extremity.	51
640	Nova.	9 39 6.4	44 53 34	Not vF; R; bM; r. The first of 2	138
641	Nova.	9 39 12.4	44 52 0	F; pabM; r; stars seen. The second of 2	138
642	Nova.	9 39 54.6	76 23 44	F; pL; R; glbM; 50"	240
643	V. 23	9 40 25.9	17 0 3	cF; vL; vglbM; 3' 1; 2½' br	382
644	Nova.	9 40 32.0	94 25 21:	cF; L; 60". The preceding of two	234

No.	Synonym.	Δ 1830.0.	N.P.D. 1830.0.	Description and Remarks.	Sweep.
G43	I. 115	$\begin{smallmatrix} h & m & s \\ 9 & 40 & 50.5 \\ & 53.9 & \end{smallmatrix}$	$\begin{smallmatrix} s & s & s \\ 55 & 39 & 34 \\ & 39 & 0 \end{smallmatrix}$	pB; R; bM; has a * 10 m 20" s f, dist 30" vF; R; bM; has a * 10 m s f.	51 128
G46	III. 51	$\begin{smallmatrix} h & m & s \\ 9 & 40 & 52.3 \\ & 53.0 & \\ & 55.1 & \end{smallmatrix}$	$\begin{smallmatrix} s & s & s \\ 76 & 23 & 9 \\ & 23 & 54 \\ & 23 & 59 \end{smallmatrix}$	eF; pL; R eF vF; E nearly in parallel; v g b M; 30" l, 20" br F; R; v g l b M; r. The following of 2.	338 243 242 234
G47	Nova.	9 41 8.5	94 22 51	vF; pL; E. P D estimated from III. 51, which precedes	242
G48	III. 52	9 41 16.6	76 28 0	eB; eL; E, pos = 156° 0; g b and then s v m b M, with faint rays of light nearly to extremities of field (15'). The most condensed part is 4' l and 3' br.	377
G49	M. 82	9 41 16.9	20 7 49	pB; S; p s b M; between 2 B st. A * 12 m with an eF neb at about 10... 12". It is between a * 8.5 m n p and one = 10 m, s f, neither of which are so affected. A curious object.	408 115
G50	Nova.	$\begin{smallmatrix} h & m & s \\ 9 & 42 & 13.4 \\ & 17.4 & \end{smallmatrix}$	$\begin{smallmatrix} s & s & s \\ 59 & 58 & 41 \\ & 58 & 52 \end{smallmatrix}$	pF; S; R eF; pL; 35"; v g b M; has a * 10 m 7' n vF; mE, pos = 111° 5; 80" l, 15" br. Aurora in sky, even at this P.D. Very doubtful. ζ and haze vF; S; R; 10"; near * 11.12 m. F; R; 20"; v g l b M pB; g b M; r; lE; 60" l, 40" br; twilight. No other cluster or neb near. eF; R; v g b M; a very condensed cl or r nebula. A * 8 m follows. eF; difficult to see for ζ . It is like a v F r neb 2 or 3' diam; precedes * 6.7 m about 1½".	406 323 397 414 382 382 143 238 237
G51	II. 835	9 44 4.2	29 53 45	F; lE; 30"; has * 9 m 6' f pB; E; has a * 9.10 m n f. pB; pL; E in parallel; g b M; 60" l, 40" br; has * 10 m n f B; R; p s b M; 60". Δ from working list, but found in its place.	337 51 128 377
G52	III. 254	9 44 53.6	87 37 44	pB; pL; R; g b M; 40" cF; R; v g v l b M; 60"; has a * 10 m in parallel, dist 7' vF; S F; vS; R; bM; a coarse D n f points to it; has a * 11 m 30" dist, pos 142° 2.	323 397 50 406
G53	II. 903	9 45 41.3	13 1 41	pB; S; mE in parallel; 30" l, 10" br; b M to nucleus pB; mE; p s b M; 30" l; 10" br. cF; S eF; doubtful AvS * 14 m seems to have some nebulous appendage, but ζ troublesome.	58 407 337 51 335
G54	II. 333	9 46 1.4	17 0 57	F; R; 20"; v g l b M pB; g b M; r; lE; 60" l, 40" br; twilight. No other cluster or neb near. eF; R; v g b M; a very condensed cl or r nebula. A * 8 m follows. eF; difficult to see for ζ . It is like a v F r neb 2 or 3' diam; precedes * 6.7 m about 1½".	382 382 143 238 237
G55	II. 334	9 46 16.4	17 3 48	pB; pL; E in parallel; g b M; 60" l, 40" br; has * 10 m n f B; R; p s b M; 60". Δ from working list, but found in its place.	337
G56	VI. 4	9 46 23.4	84 55 38	pB; pL; R; g b M; 40" cF; R; v g v l b M; 60"; has a * 10 m in parallel, dist 7' vF; S F; vS; R; bM; a coarse D n f points to it; has a * 11 m 30" dist, pos 142° 2.	382 143 238 237
G57	II. 492	$\begin{smallmatrix} h & m & s \\ 9 & 48 & 21.1 \\ & 22.0 & \\ & 22.5 & \end{smallmatrix}$	$\begin{smallmatrix} s & s & s \\ 56 & 49 & 35 \\ & 49 & 4 \\ & 49 & 25 \end{smallmatrix}$	pB; pL; R; g b M; 40" cF; R; v g v l b M; 60"; has a * 10 m in parallel, dist 7' vF; S F; vS; R; bM; a coarse D n f points to it; has a * 11 m 30" dist, pos 142° 2.	337 51 128 377
G58	I. 286	9 48 33±	20 26 45	pB; S; mE in parallel; 30" l, 10" br; b M to nucleus pB; mE; p s b M; 30" l; 10" br. cF; S eF; doubtful AvS * 14 m seems to have some nebulous appendage, but ζ troublesome.	58 407 337 51 335
G59	I. 272	9 49 2.8	78 50 13	pB; pL; R; g b M; 40" cF; R; v g v l b M; 60"; has a * 10 m in parallel, dist 7' vF; S F; vS; R; bM; a coarse D n f points to it; has a * 11 m 30" dist, pos 142° 2.	123 331 50 406
G60	III. 542	9 49 31.1	53 47 17	pB; S; mE in parallel; 30" l, 10" br; b M to nucleus pB; mE; p s b M; 30" l; 10" br. cF; S eF; doubtful AvS * 14 m seems to have some nebulous appendage, but ζ troublesome.	58 407 337 51 335
G61	III. 24	9 51 36.7	66 47 19	pB; pL; R; g b M; 40" cF; R; v g v l b M; 60"; has a * 10 m in parallel, dist 7' vF; S F; vS; R; bM; a coarse D n f points to it; has a * 11 m 30" dist, pos 142° 2.	331 50 406
G62	III. 916	9 52 27.8	29 4 51	pB; S; mE in parallel; 30" l, 10" br; b M to nucleus pB; mE; p s b M; 30" l; 10" br. cF; S eF; doubtful AvS * 14 m seems to have some nebulous appendage, but ζ troublesome.	58 407 337 51 335
G63	Nova.	9 52 38.7	64 28 23	pB; pL; R; g b M; 40" cF; R; v g v l b M; 60"; has a * 10 m in parallel, dist 7' vF; S F; vS; R; bM; a coarse D n f points to it; has a * 11 m 30" dist, pos 142° 2.	123 331 50 406
G64	III. 478	$\begin{smallmatrix} h & m & s \\ 9 & 52 & 39.6 \\ & 40 \pm & \end{smallmatrix}$	$\begin{smallmatrix} s & s & s \\ 56 & 28 & 35 \\ & 27 & 24 \end{smallmatrix}$	pB; S; mE in parallel; 30" l, 10" br; b M to nucleus pB; mE; p s b M; 30" l; 10" br. cF; S eF; doubtful AvS * 14 m seems to have some nebulous appendage, but ζ troublesome.	58 407 337 51 335
G65	IV. 46	9 53 29.1±	48 26 51±	pB; pL; R; g b M; 40" cF; R; v g v l b M; 60"; has a * 10 m in parallel, dist 7' vF; S F; vS; R; bM; a coarse D n f points to it; has a * 11 m 30" dist, pos 142° 2.	123 331 50 406
G66	II. 320	9 54 13.3	57 59 42	pB; S; R; s m b M; is equal to a * 12 m cF; R; v g v l b M; 60"; has a * 10 m in parallel, dist 7' vF; S F; vS; R; bM; a coarse D n f points to it; has a * 11 m 30" dist, pos 142° 2.	56 331 50 406

No.	Synonym.	Δ 1850-0.	N.P.D. 1850-0.	Description and Remarks.	Sweep.
667	Nova.	$\begin{smallmatrix} h & m & s \\ 9 & 55 & 19.5 \\ & & 19.8 \\ & & 21.6 \end{smallmatrix}$	$\begin{smallmatrix} ^{\circ} & ' & '' \\ 41 & 54 & 49 \\ & 55 & 2 \\ & 54 & 36 \end{smallmatrix}$	pB; R; s m b M; 20" Not e F; S; R B; R; p s m b M; almost to a * 12 m	138 330 329
668	I. 163	9 56 45.3	96 53 33	v B; L; m E; v s m b M; almost to a nucl; 3' 1, 30" br. With 12 inches aperture, its nucleus is rather speckled; with 6 inches it is barely discernible as a neb. P D by MS 97°, but my father's obs makes it 96°. Each has but one obs. Of course I prefer 96.	136
669	III. 65	9 59 2±	70 45 ±	e F; S; R. Forms a triangle with 2 st. Δ R by working list; P D rough approx.	332
670	Nova.	9 59 9.3	79 12 0	e F; S; p s b M; follows 31 Leonis 16° 5, and is 1' 40" s of it	123
671	Nova.	9 59 16.0	70 56 6	p B; p m E; g b M; 40" 1, 20" br. Found in looking for III. 65 by working list.	334
672	Nova.	10 0 17.0	43 12 27	F; R; g b M; 25"	139
673	III. 518	10 1 49.6	101 35 29	F; L; R; v g b M; 60". In field with λ Hydæ	129
674	I. 79	10 2 8.9	15 45 46	v B; L; R; at first v g, then v s, v m b M	382
675	Nova.	10 2 52.5	38 40 33	A star 7 m has a photosphere 2 or 3' diam. Sky perfectly clear; glass quite clean; windy. Another * of same magnitude viewed presently after has no photosphere.	328
676	Nova.	10 3 ±	14 45 ±	v F; S; R. Δ extremely precarious	171
677	III. 53	10 3 31.7	76 29 59	e F; p L; R	242
678	II. 639	10 3 43.5±	50 24 39±	B; R; p s b M; 35"	335
679	Nova.	10 3 47.6	32 29 57	e F; R; v g l b M; 15"	325
680	III. 255	10 3 51.9	86 1 38	p B; S; R; p s b M; 15"	143
681	II. 640	10 4 0.5±	50 31 21±	F; R; g b M; 30"	335
682	II. 43	10 4 2.3	66 25 20	p B; L; R; g l b M; a * 10 m precedes	244
		3.9	25 43	Not v F; L; R; v g l b M; 70"	246
		...	26 ±	p B; p L; b M; r	59
683	Nova.	10 4 39.5	28 55 45	F; p s b M; like a star rubbed out. A * 7.8 m in field n p—dist 5'.	406
684	I. 3	10 4 54.9	85 44 18	B; p S; R; p s b M; 25"	143
		56.4	43 54	p B; R; p s b M; 20...30"	238
		57.1	44 33	B; R; p s m b M; the preceding and brighter of two. Δ Δ R = 29° 25	237
		64° 8±	43 27	B; R; g b M; 60". The p of 2. (The Δ very precarious, the chronometer not being then in use.)	18
685	I. 4	10 5 24.2	85 41 30	B; R; p s b M; 30". Has a * 10 m 26° n f, dist 90"	143
		24.7	42 9	B; R; p g m b M; the foll and fainter of 2. Δ Δ R = 29° 25..	237
		26.2	41 49	p B; l E; 30"; has * 12 m n f; pos 78° 2; 70" dist	238
		33° 8±	40 27	B; R; g m b M; 60"; the foll of 2. Δ very precarious ..	18
686	Nova.	10 5 39.6	42 33 47	F; S; R	139
687	III. 25	10 7 11.2	68 1 31	Not v F; S; R; p s b M; 16"	246
		12.0	1 40	Not v F; S; R; p s b M	244
		12.7	2 16	p B; p L; R	59

No.	Synonym.	R. 1830-0.	N.P.D. 1830-0.	Description and Remarks.	Sweep.
688	I. 168	10 8 1-2	47 44 7	F; v L; R; v g b M; a * 8 m p, 10' dist.....	248
689	Nova.	10 8 4-5:	47 32 11:	p F; v L; R; v g b M; 12-5 of time in diam; has a * 11 m 2' north.	335
690	III. 910	10 8 15-6	31 44 12	c F; p L; 30".....	323
691	Nova?	10 8 34-0	42 42 52	F; S; R; b M; 15...20". If this be III. 704, there must exist a great error in P.D. on one or other side.	139
692	II. 44.	10 8 42-6	67 19 5	B; p m E; p s b M.....	244
		43-3	19 13	p B; E; g b M; 45" 1, 40" br.....	246
		44-8	19 26	B; E; s b M to nucl; 60" 1; the sp of 2.....	59
693	II. 45	10 9 1-5	67 15 35	B; R; has a * 8 m n, dist 60". The n f of 2.....	59
		2-0	15 20	p B; R; p s b M; pos of a * 10 m from neb = 352° 0.....	244
		2-2	15 33	B; R; p s b M; 30"; has a * 10 m n p, 90" dist.....	246
694	III. 348	10 9 11-7:	61 29 31:	So c F that I remained unsatisfied.....	57
695	I. 199	10 9 23-3	43 35 19	F; v L; b M; m E; G' 1, 2 1/2' br; r.....	140
696	II. 720	10 10 16±	46 9 45:	v F; R; v g b M; 30"; the preceding of 3 neb in a triangle. Some stars near.	248
697	I. 266	10 10 30-6	32 13 7	v F; L; E; v g l b M; 2' 1; 1 1/2' br.....	323
698	Nova.	10 10 31-0	61 19 57	F; L; 40...60"; g b M.....	115
699	II. 721	10 10 32-5	46 11 52	v F; R; v g b M; 30"; the second of 3 in a triangle.....	248
700	II. 722	10 10 44-1	46 9 52	v F; R; v g b M; 30"; the last of 3 in a triangle.....	248
701	Nova.	10 11 6-0	63 38 48	F; R; 30"; has a *.....	58
702	III. 330	10 12 14-7	65 12 54	c F; R; 20".....	407
703	II. 882	10 13 42-2	31 0 17	p F; L; E; v g b M; 30...40".....	323
704	Nova.	10 14 11-9	22 20 3	A cluster of 20 stars more or less, 10, 11 and 12 m, scattered over a space 10' diam. A star 7 m s.	412
705	Nova.	10 14 38-9	76 35 4	A very close D * of the first class involved in a nebulous wisp. "A most curious, delicate and interesting object." This is my double star No 2529.	243
		39-2	34 54	A triple star in a nebula, a fourth * suspected.....	242
		40-5	36 ±	A double * in v F nebula.....	338
706	Nova.	10 14 57-3	62 7 2	p B; R; p s b M; 30".....	115
707	Nova.	10 15 12-3	27 52 13	c F; S; p s b M; 8"; 2 st 11 and 12 m follow.....	406
708	III. 883	10 15 29-1	31 55 22	Not v F; R; p s b M; 20".....	323
709	III. 631	10 15 41-0:	49 30 46:	p F; R; S; p g b M; 10...12".....	335
710	IV. 10	10 15 53-1	71 59 2	A * 9 m, with v F neb. atmosph. rather excentric. Has 2 st p and ? another v S * f.	332
		53-2	59 42	A * 9 m, with a v F neb. The * is excentric, and has another * foll at extreme edges.	63
711	I. 86	10 17 42-6	60 37 5	v B; R; g m b M; 40".....	68
		43-1	37 51	v B; R; p s b b M; r; 40".....	408
		43-5	37 52	v B; m E; v s m b M; 40" 1, 15" br.....	343
		43-9	38 22	B; E; comes up to a nucleus.....	57
		...	38 31:	v B; E; comes to nucleus. Transit missed.....	66

No.	Synonym.	Rt 1830-0.	N.P.D. 1830-0.	Description and Remarks.	Sweep.
712	Nova.	10 17 52.5	85 16 38	e F; S; R; two at, 10 and 11 s.p. dist 90".....	142
		...	18 ±	e F; has a * 6 m, 30° n p, dist 8'.....	143
		...	.....	Viewed. It is 31° 5 foll a * 6.7 m, and makes a triangle with 2 S st.	238
713	II. 374	10 18 22.2	66 17 25	p B; R; S; p s b M; 15".....	244
		23.0	17 17	No description	246
		...	17 25	F; S; b M.....	59
714	I. 72	10 19 43.5	59 38 19	p B; E; b M.....	68
		47.3	38 37	p B; R; s b M	6
		...	38 ±	F; R; p s b M; 40"; has coarse D * 23° 0 f	341
715	II. 870	10 20 34.7	24 5 41	F; R; g b M; 18".....	411
716	Nova.	10 21 21.4	33 2 27	e F; between 2 S stars	323
717	II. 871	10 21 22.1	24 23 6	v F; R; p s m b M; almost to a star	411
718	III. 349	10 21 32.3	60 20 18	p F; a * very near or else extended.....	408
		34.2	20 17	p B; R; p s b M	343
		35.4	20 32	p F; S; b M; has a * s f.....	115
		36.4	20 32	v F; S; R.....	57
719	III. 331	10 22 4.2	64 15 18	F; E; g b M	58
720	II. 358	10 22 45.0	61 27 23	F; R; 25".....	415
		45.3	27 56	v F; R; g l b M; 30"	408
		47.1	27 31	F; has a D star f	66
		50.3	28 22	p B; p L; R; b M.....	115
721	II. 359	10 23 22.3	60 36 32	B; R; g b M; 30"	68
		23.3	37 28	p B; v S; R	57
		23.4	37 26	B; R; p g m b M; 15".....	408
722	III. 917	10 25 10.9	30 30 57	v F; p S; R; p s l b M; 15"	323
723	III. 918	10 25 14.4	30 34 17	e F; S; R; v g l b M; 12"	323
724	I. 164	10 26 28.6	51 48 2	p B; m E; g l b M; 2' 1, 45" br	331
725	III. 767?	10 26 53.7	39 0 36	v F; two distant stars nearly on parallel	329
726	III. 54	10 27 22.0	76 25 23	p L; so faint as to be barely perceptible, but a sure observation.	338
727	III. 55	10 27 34.1	74 57 2	F; R; g b M	24
		35.0	57 34	e F; S; R; p s b M; 10".....	243
728	II. 46	10 27 38.7	67 14 19	B; R; p s m b M; 35"	244
		40.6	14 38	B; E; nearly lost by looking too late	59
		...	16 ±	No descrip. P D only rudely taken to satisfy myself of an error in my father's place, as shown in the working list.	246
729	III. 615	10 27 48.4	51 40 2	e F	401
		51.3	40 17	v F; S; p s b M; 12"	331
730	III. 66	10 27 49.5	70 59 67	v F; v S; R; l b M	63
		50.0	59 6	v F; S; R; g b M; 12"	334
731	IV. 60	10 28 6.6	35 36 32	B; R; v s m b M, so as to form almost a disc 15" diam. Surrounded by a v feeble atmosphere. See fig 40.	324

OF NEBULÆ AND CLUSTERS OF STARS.

397

No.	Synonym.	R 1830-0.	N.P.D. 1830-0.	Description and Remarks.	Sweep.
732	II. 745	$\begin{smallmatrix} h & m & s \\ 10 & 29 & 22.4 \\ & & 25.6 \end{smallmatrix}$	$\begin{smallmatrix} 0 & 43 & 6 \\ & 41 & 17 \end{smallmatrix}$	F; m E; between a * 10 m and 1 of 14 m v F; E in a direction between 2 small stars 13 m and 11 m, from sp to n f. (Fog.)	329 330
733	Nova.	$\begin{smallmatrix} 10 & 29 & 52.2 \\ & & 57 \pm \\ & & 61.2 \end{smallmatrix}$	$\begin{smallmatrix} 12 & 17 & 24 \\ & 16 & \pm \\ & 18 & 11 \end{smallmatrix}$	p B; S; p s m b M. p B; irreg R; p s m b M; 15" p B; 1 E; g b M; 25". The obs makes the P D 13°, but there can be no doubt that this neb is the same as that of the two preceding observations.	413 171 414
734	II. 346	$\begin{smallmatrix} 10 & 30 & 37.7 \\ & & 39.2 \end{smallmatrix}$	$\begin{smallmatrix} 65 & 1 & 48 \\ & 1 & 38 \end{smallmatrix}$	v F; R; g b M; 30" v F; S; has either a * which gives it an apparent elongation in parallel, or is a double nebula.	407 58
735	II. 641	$\begin{smallmatrix} 10 & 31 & 45.0 \\ & & \dots \end{smallmatrix}$	$\begin{smallmatrix} 51 & 48 & 56 \\ & 47 & \pm \end{smallmatrix}$	v F; R; b M. F; R; 30". Taken much out of merid. P D only approximate.	401 331
736	III. 317	$\begin{smallmatrix} 10 & 32 & 55.9 \end{smallmatrix}$	$\begin{smallmatrix} 15 & 45 & 28 \end{smallmatrix}$	not v F; R; g b M.	382
737	II. 77	$\begin{smallmatrix} 10 & 33 & 6.3 \\ & & 7.3 \end{smallmatrix}$	$\begin{smallmatrix} 75 & 22 & 7 \\ & 22 & 39 \end{smallmatrix}$	F; E; p L; 60....90" F; E; p L; v g b M; follows a * 7 m 10° 0	24 242
738	I. 50	$\begin{smallmatrix} 10 & 34 & 9.6 \end{smallmatrix}$	$\begin{smallmatrix} 16 & 15 & 59 \end{smallmatrix}$	B; R; p s b M; 40"; has * 11 m pos 281° 8, $\Delta RA = 20^{\circ} 0$.	382
739	I. 51	$\begin{smallmatrix} 10 & 34 & 10.6 \end{smallmatrix}$	$\begin{smallmatrix} 64 & 10 & 58 \end{smallmatrix}$	p B; L; g b M; has (?) a * excentric within it and a double * closely following it.	58
740	I. 26	$\begin{smallmatrix} 10 & 34 & 33.3 \end{smallmatrix}$	$\begin{smallmatrix} 77 & 7 & 19 \end{smallmatrix}$	e F; hardly visible.	243
741	III. 542	$\begin{smallmatrix} 10 & 34 & 45.7 \end{smallmatrix}$	$\begin{smallmatrix} 33 & 9 & 7 \end{smallmatrix}$	p B; S; R; p g b M; 15"; a S * 90° s	323
742	Nova.	$\begin{smallmatrix} 10 & 34 & 53.0 \end{smallmatrix}$	$\begin{smallmatrix} 58 & 22 & 58 \end{smallmatrix}$	e F; v S; very difficult, but a certain obs; is n of 2 at 9 or 10 m. Sky perfectly clear.	342
743	M. 95	$\begin{smallmatrix} 10 & 34 & 54.5 \\ & & 60.6 \\ & & 62.2 \\ & & \dots \\ & & \dots \end{smallmatrix}$	$\begin{smallmatrix} 77 & 25 & 9 \\ & 24 & 43 \\ & 24 & 4 \\ & 26 & \pm \\ & \dots \end{smallmatrix}$	v B; L; R; g m b M; 2' diam. RA only approximate B; R; p g b M; r; 150" diam Just seen through a thick cloud F; L; g m b M; r; 3' diam. Approx place. Viewed; v F; E; r; 30 or 40" (probably cloudy); a star precedes. A very doubtful obs.	19 338 240 243 2
744	III. 107	$\begin{smallmatrix} 10 & 35 & 19.1 \\ & & 19.2 \end{smallmatrix}$	$\begin{smallmatrix} 82 & 21 & 16 \\ & 21 & 84 \end{smallmatrix}$	e F; R; b M; 30"; a * 9 m s dist 2' or 3' F; S; R; b M; 20"	117 250
745	V. 52	$\begin{smallmatrix} 10 & 35 & 20.5 \end{smallmatrix}$	$\begin{smallmatrix} 25 & 53 & 1 \end{smallmatrix}$	p F; L; E in merid; g l b M; 2½ l, 2' br	411
746	III. 316	$\begin{smallmatrix} 10 & 35 & 39.6 \end{smallmatrix}$	$\begin{smallmatrix} 16 & 40 & 13 \end{smallmatrix}$	e F; L; R; v g b M; 60"; a coarse d * s f points back directly to it.	382
747	Nova.	$\begin{smallmatrix} 10 & 37 & 26.8 \end{smallmatrix}$	$\begin{smallmatrix} 87 & 19 & 7 \end{smallmatrix}$	e F; L; 2' l, 20" br; v g v l b M; a ray neb	144
748	II. 78	$\begin{smallmatrix} 10 & 37 & 34.4 \\ & & 35.2 \end{smallmatrix}$	$\begin{smallmatrix} 75 & 21 & 38 \\ & 21 & 34 \end{smallmatrix}$	p B; v L; irreg R; v g b M; 2' diam p B; L; R; v g b M; the preceding of 3 in a triangle. Pos of 1 and 2 = 68° 4; of 2 and 3 = 156° 8.	338 242
749	M. 96	$\begin{smallmatrix} 10 & 37 & 42.4 \\ & & 43.1 \\ & & 46.8 \\ & & 48.3 \end{smallmatrix}$	$\begin{smallmatrix} 77 & 18 & 11 \\ & 17 & 34 \\ & 17 & 17 \\ & 17 & 0 \end{smallmatrix}$	v B; L; R; g m b M; r; 2' diam v B; p L; s m b M; almost to a nucl. Seen at the same time by M. KNOX. v F (cloudy); R; p s b M; a good obs of place v B; v L; E; v s v m b M; G' l, 5' br	19 22 240 340

No.	Synonym.	R 1850-0.	N.P.D. 1850-0.	Description and Remarks.	Sweep.
750	II. 81	10 37 57.9 58.4	71 50 1 50 27	B; R; pL; pgbM; 35"..... pB; R; bM; r.....	334 63
751	Nova.	10 38 1.7	75 18 59	F; R. The second of 3 in a triangle.....	242
752	III. 701	10 38 4.2	45 54 52	vF; S; R; 12".....	248
753	Nova.	10 38 13.7	75 25 49	F; R; the last of 3 in a triangle.....	242
754	II. 99	10 38 40.5 41.6	75 6 49 7 6	vB; R; sbm to a *; 45"..... B; R; smbM; 30". Sky clearing after clouds.....	418 241
		...	.....	vB; first Class; vs vmbM; 90".....	419
755	II. 360	10 38 45.2 46.7 48.2 48.7 49.7	60 30 31 30 42 30 6 30 34 29 52	B; R; smbM; 30"..... pB; R; bM; 25"..... B; R; sbM; 30"..... F; S; R; bM..... No description.....	65 343 66 57 115
756	II. 565	10 38 49.0 54.0	54 24 24 23 20	F; R..... pB; L; R; vgbM; 90".....	51 128
757	I. 17	10 38 50.1 50.5 50.7	76 31 33 32 14: 31 24:	vB; pL; R; psvmbM; 50"; r. The first of 3..... vB; R. The first of 3..... vB; L; R; psbM; 50". (Seen also in Sweep 2.).....	338 243 240
758	I. 18	10 39 16.7 16.9 17.1	76 28 54 29 19 28 48	vB; L; R; psbM; 40". The second and most n of 3..... vB; R. The second of 3..... vB; R; psbM; 30". (Seen also in Sweep 2.).....	240 243 338
759	Nova.	10 39 21.4	84 6 31	vF; R.....	142
760	Nova.	10 39 21.5 22.9	84 10 34 11 16	eF; E..... pB; R; bM; 15".....	238 142
761	II. 41	10 39 28.1 28.8 30±	76 34 23 33 59 34 ±	F; E; vglbM; the last of 3..... F; L; the following of 3..... barely visible; pL. Place estimated from the position with respect to the others.	338 242 243
		...	.....	vF; diluted; E in parallel; 15".....	2
762	Nova.	10 39 29.0	84 8 34	Suspected nebula. Has a B * near.....	238
763	II. 881	10 39 33.5	23 19 13	eF; S; psbM; near some stars.....	412
764	II. 872	10 39 57.5	23 21 23	vF; L; lE; vgbM; 50" l, 45" br.....	412
765	I. 116	10 40 20.5 22.6 ...	56 7 24 6 55 8 ±	pB; S; E. The sp of two; dist ½ diam..... B; R; bM..... The p of 2; pos of the other 20° n f, dist 80. The first is the brightest.	51 128 125
766	I. 117	10 40 24.2: 29.1 ...	56 6 57 6 6 8 ±	pB; S; E. The second and fainter of 2..... pB; E; is n f the nebula I. 116..... The second and fainter of 2; pos 20° n f. Hazy. Place uncertain.	51 128 125
767	II. 335	10 40 57.1	15 25 6	pF; L; E; vgbM; 60" l, 40" br.....	382

OF NEBULAE AND CLUSTERS OF STARS.

399

No.	Synonym.	At 1850-0.	N.P.D. 1850-0.	Description and Remarks.	Sweep.
768	II. 361	$\begin{smallmatrix} h & m & s \\ 10 & 41 & 22.2 \end{smallmatrix}$	$\begin{smallmatrix} \text{°} & \text{' } & \text{''} \\ 60 & 38 & 17 \end{smallmatrix}$	pB; R; bM; 20"	343
			23-1	F; S; R	57
			23-4	pF; R	66
769	III. 919	$\begin{smallmatrix} h & m & s \\ 10 & 41 & 23.8 \end{smallmatrix}$	$\begin{smallmatrix} \text{°} & \text{' } & \text{''} \\ 27 & 43 & 38 \end{smallmatrix}$	eF; S; R; 6"	406
770	III. 913	$\begin{smallmatrix} h & m & s \\ 10 & 41 & 27.5 \end{smallmatrix}$	$\begin{smallmatrix} \text{°} & \text{' } & \text{''} \\ 30 & 40 & 17 \end{smallmatrix}$	vF; S; R; is 12" n of 2 p b at forming an isosceles triangle..	323
771	Nova.	$\begin{smallmatrix} h & m & s \\ 10 & 41 & 29.0 \end{smallmatrix}$	$\begin{smallmatrix} \text{°} & \text{' } & \text{''} \\ 38 & 4 & 23 \end{smallmatrix}$	pB; 2nd class; R; p g b M; among many stars	328
772	II. 716	$\begin{smallmatrix} h & m & s \\ 10 & 41 & 48.4 \end{smallmatrix}$	$\begin{smallmatrix} \text{°} & \text{' } & \text{''} \\ 45 & 23 & 22 \end{smallmatrix}$	B; S; R; the 2nd and northern of a trapez of stars 11 and 12 m	248
773	II. 362	$\begin{smallmatrix} h & m & s \\ 10 & 41 & 53.5 \end{smallmatrix}$	$\begin{smallmatrix} \text{°} & \text{' } & \text{''} \\ 61 & 7 & 8 \end{smallmatrix}$	B; R; g b M	68
			53-6	B; R; a m b M; 30"	65
			54-5	B; p L; R; p g m b M	343
			55-7	vB; R; v m b M; 60"	115
774	I. 27	$\begin{smallmatrix} h & m & s \\ 10 & 41 & 53.9 \end{smallmatrix}$	$\begin{smallmatrix} \text{°} & \text{' } & \text{''} \\ 75 & 41 & 13 \end{smallmatrix}$	B; R; v m b M almost to a *; 30"	241
			54-9	B; R; p s b M; 50"; r	340
775	II. 363	$\begin{smallmatrix} h & m & s \\ 10 & 42 & 1.5 \end{smallmatrix}$	$\begin{smallmatrix} \text{°} & \text{' } & \text{''} \\ 60 & 59 & 27 \end{smallmatrix}$	F; L; R; b M	343
			3-4	pF; R; p s b M	415
			...	vF; S; g b M; 20". Too late for RA	115
			...	vF; R; RA missed	57
776	III. 522	$\begin{smallmatrix} h & m & s \\ 10 & 42 & 10 \pm \end{smallmatrix}$	$\begin{smallmatrix} \text{°} & \text{' } & \text{''} \\ 101 & 57 & \pm \end{smallmatrix}$	vF; R; b M. RA from working list	129
777	{ IV. 6 III. 88 II. 131	$\begin{smallmatrix} h & m & s \\ 10 & 42 & 21.0 \end{smallmatrix}$	$\begin{smallmatrix} \text{°} & \text{' } & \text{''} \\ 83 & 15 & 36 \end{smallmatrix}$	F; v L; irr R; v g b M; r; 2' diam; no other seen. This neb is identical with III. 88 and II. 131.	250
			24-1	F; v L; R; v g b M; at least 4' diam; no other near	117
			25-7	v L; R; 3' diam; v g b M; r. Directing the eye aside, the stars in it were seen as infinitely minute points. In the 40-feet reflector it would no doubt be seen as a globular cluster.	251
778	II. 494	$\begin{smallmatrix} h & m & s \\ 10 & 42 & 21.1 \end{smallmatrix}$	$\begin{smallmatrix} \text{°} & \text{' } & \text{''} \\ 56 & 12 & 22 \end{smallmatrix}$	B; E in a wisp; the sp of 2	128
			13 ±	F; the sp of three. PD very rough	337
779	Nova.	$\begin{smallmatrix} h & m & s \\ 10 & 42 & 47.1 \end{smallmatrix}$	$\begin{smallmatrix} \text{°} & \text{' } & \text{''} \\ 56 & 8 & 40 \end{smallmatrix}$	B; L; E; g b M; the n f of 2	128
			7 ±	pB; p m E; the second of three. PD rough	337
780	I. 172	$\begin{smallmatrix} h & m & s \\ 10 & 42 & 50.1 \end{smallmatrix}$	$\begin{smallmatrix} \text{°} & \text{' } & \text{''} \\ 52 & 29 & 5 \end{smallmatrix}$	v F; a long ray pos = 40° 8; has a D class 4 in middle, and one more.	401
			57-1	pB; v m E; 90" L, 12" br; pos = 44° 2. Its southern extremity touches the L * of a D *. Can this nebula have moved?	331
781	II. 887	$\begin{smallmatrix} h & m & s \\ 10 & 42 & 58.9 \end{smallmatrix}$	$\begin{smallmatrix} \text{°} & \text{' } & \text{''} \\ 27 & 48 & 51 \end{smallmatrix}$	e F; L E; S; v g b M; 15"	406
782	Nova or I. 118	$\begin{smallmatrix} h & m & s \\ 10 & 43 & \pm \end{smallmatrix}$	$\begin{smallmatrix} \text{°} & \text{' } & \text{''} \\ 56 & 1 & \pm \end{smallmatrix}$	B; L; the n f of three in a line. This neb may possibly be I. 118, as none exists in the place indicated by my Father (1° 32' s of 46 Urae).	337
783	III. 20	$\begin{smallmatrix} h & m & s \\ 10 & 43 & 6.1 \end{smallmatrix}$	$\begin{smallmatrix} \text{°} & \text{' } & \text{''} \\ 78 & 57 & 17 \end{smallmatrix}$	e F; v L; R; v g l b M; 2' diam	120
784	III. 497	$\begin{smallmatrix} h & m & s \\ 10 & 43 & 10.1 \end{smallmatrix}$	$\begin{smallmatrix} \text{°} & \text{' } & \text{''} \\ 85 & 18 & 46 \end{smallmatrix}$	pB; R; v g l b M; 30"	142
785	III. 914	$\begin{smallmatrix} h & m & s \\ 10 & 43 & 18.7 \end{smallmatrix}$	$\begin{smallmatrix} \text{°} & \text{' } & \text{''} \\ 31 & 58 & 57 \end{smallmatrix}$	No description	323
786	II. 47	$\begin{smallmatrix} h & m & s \\ 10 & 43 & 21.2 \end{smallmatrix}$	$\begin{smallmatrix} \text{°} & \text{' } & \text{''} \\ 66 & 9 & 48 \end{smallmatrix}$	B; p L; E 30° n p to s f = pos 120°	59
			21-8	pB; L E; g b M	244
			...	pB; L E; b M; 40". RA lost	246
787	I. 267	$\begin{smallmatrix} h & m & s \\ 10 & 44 & 6.5 \end{smallmatrix}$	$\begin{smallmatrix} \text{°} & \text{' } & \text{''} \\ 32 & 6 & 47 \end{smallmatrix}$	pB; L; R; v g l b M; has * 10 m 2' n f	323

No.	Synonym.	R. 1830-0.	N.P.D. 1830-0.	Description and Remarks.	Sweep.
786	I. 283	$\begin{smallmatrix} h & m & s \\ 10 & 44 & 15.2 \end{smallmatrix}$	$\begin{smallmatrix} \circ & ' & '' \\ 34 & 47 & 17 \end{smallmatrix}$	B; mE; g b M; no nucl; $1\frac{1}{2}'$ L, 20" br; pos = $67^{\circ}-0$	324
789	II. 364	$\begin{smallmatrix} h & m & s \\ 10 & 44 & 56.0 \end{smallmatrix}$	$\begin{smallmatrix} \circ & ' & '' \\ 61 & 51 & 22 \end{smallmatrix}$	p L; E; b M; $90''$ l	115
		62.7	51 41	e F; R; $40''$	65
		63.1	51 36	F; L; R; v l b M; $60''$	66
		64.1	51 39	p B; S; R; b M	57
790	Nova.	$\begin{smallmatrix} h & m & s \\ 10 & 45 & 24.8 \end{smallmatrix}$	$\begin{smallmatrix} \circ & ' & '' \\ 71 & 45 & 1 \end{smallmatrix}$	p F; l E; the n p of two	334
791	II. 82	$\begin{smallmatrix} h & m & s \\ 10 & 45 & 26.8 \end{smallmatrix}$	$\begin{smallmatrix} \circ & ' & '' \\ 71 & 48 & 41 \end{smallmatrix}$	p B; E; g b M. The s f of 2; a * 9.10 m between them	334
		...	48 26	No R A observed	63
792	IV. 29	$\begin{smallmatrix} h & m & s \\ 10 & 45 & 42.8 \end{smallmatrix}$	$\begin{smallmatrix} \circ & ' & '' \\ 105 & 7 & 25 \end{smallmatrix}$	A * 12 m with an extremely F neb appendage. At first it seemed to envelope the *; but Mr. DUNLOP, to whom I showed it, considered it to be detached.	111
793	Nova.	$\begin{smallmatrix} h & m & s \\ 10 & 45 & 45.6 \end{smallmatrix}$	$\begin{smallmatrix} \circ & ' & '' \\ 71 & 29 & 22 \end{smallmatrix}$	Stellar. 2 or 3 stars with a nebulous burr observed by Mr. BAILLY.	63
794	II. 16	$\begin{smallmatrix} h & m & s \\ 10 & 46 & 28.0 \end{smallmatrix}$	$\begin{smallmatrix} \circ & ' & '' \\ 81 & 24 & 9 \end{smallmatrix}$	v F; S; R; p s b M; $12''$	250
795	Nova.	$\begin{smallmatrix} h & m & s \\ 10 & 46 & 36.9 \end{smallmatrix}$	$\begin{smallmatrix} \circ & ' & '' \\ 13 & 54 & 6 \end{smallmatrix}$	e F; p L; R; v g l b M; $30''$; a D * n f points to it	413
		38.2	54 21	e F; a D * points to it	414
796	Nova.	$\begin{smallmatrix} h & m & s \\ 10 & 47 & 23.3 \end{smallmatrix}$	$\begin{smallmatrix} \circ & ' & '' \\ 79 & 21 & 15 \end{smallmatrix}$	v F; has another still fainter following; has also a * 9 m preceding in the same parallel.	120
797	III. 632	$\begin{smallmatrix} h & m & s \\ 10 & 47 & 51.0 \end{smallmatrix}$	$\begin{smallmatrix} \circ & ' & '' \\ 48 & 8 & 18 \end{smallmatrix}$	F; S; R; g b M; $15''$	335
		51.2	8 50	not v F, S; R; p s b M; $12''$; a * 13 m near	248
798	Nova.	$\begin{smallmatrix} h & m & s \\ 10 & 47 & 51.8 \end{smallmatrix}$	$\begin{smallmatrix} \circ & ' & '' \\ 79 & 20 & 15 \end{smallmatrix}$	v F; R; v s m b M to a * 12 m	120
799	II. 888	$\begin{smallmatrix} h & m & s \\ 10 & 48 & 12.8 \end{smallmatrix}$	$\begin{smallmatrix} \circ & ' & '' \\ 29 & 35 & 13 \end{smallmatrix}$	e F; R; v g b M; $15''$	406
800	III. 332	$\begin{smallmatrix} h & m & s \\ 10 & 49 & 12.2 \end{smallmatrix}$	$\begin{smallmatrix} \circ & ' & '' \\ 64 & 51 & 43 \end{smallmatrix}$	v F; R; g b M; 2' s of a * 13 m	407
801	III. 705	$\begin{smallmatrix} h & m & s \\ 10 & 49 & 34.1 \end{smallmatrix}$	$\begin{smallmatrix} \circ & ' & '' \\ 42 & 58 & 42 \end{smallmatrix}$	F; S; R	139
802	III. 967?	$\begin{smallmatrix} h & m & s \\ 10 & 50 & 8.9 \end{smallmatrix}$	$\begin{smallmatrix} \circ & ' & '' \\ 13 & 16 & 11 \end{smallmatrix}$	A very doubtful object	414
803	I. 269	$\begin{smallmatrix} h & m & s \\ 10 & 50 & 59.7 \end{smallmatrix}$	$\begin{smallmatrix} \circ & ' & '' \\ 31 & 25 & 17 \end{smallmatrix}$	e F; l E; $40''$. It is n of a * 13 m, just at the edge of the neb	323
804	II. 100	$\begin{smallmatrix} h & m & s \\ 10 & 51 & 0.9 \end{smallmatrix}$	$\begin{smallmatrix} \circ & ' & '' \\ 74 & 16 & 54 \end{smallmatrix}$	F; L; R; g l b M; $85''$	418
		3.1	14 15	p B; L; E; has a * 11 m 7' s sp.	419
		3.4	15 7	F; p L; $90''$	24
805	I. 87	$\begin{smallmatrix} h & m & s \\ 10 & 51 & 3.2 \end{smallmatrix}$	$\begin{smallmatrix} \circ & ' & '' \\ 60 & 7 & 2 \end{smallmatrix}$	B; L; R; p s b M; 2'	343
		4.8	6 51	v B; v L; R; s m b M; $90''$	65
		5.1	6 41	p B; v L; R; g b M; r	68
		5.4	6 28	v B; E; p s m b M; $60''$ l, $40''$ br.	415
		5.6	7 4	No description	416
		5.7	7 9	F; L; b M; $50''$	57
		6.0	6 44	p B; R; p g m b M; r	341
		6.0	6 56	v B; L; R; s b M; $90''$	66
		6.2	6 11	B; L; R; g m b M; $50''$; r. No doubt a distant globular cluster	342
		9.8	6 17	p B; R; r; seen through cloud.	56
806	II. 101	$\begin{smallmatrix} h & m & s \\ 10 & 51 & 21.0 \end{smallmatrix}$	$\begin{smallmatrix} \circ & ' & '' \\ 75 & 11 & 28 \end{smallmatrix}$	v B; first class; l E; p s b M, r	358
		21.0	11 16	v B; first class; R; v s m b M, almost to * 11 m	241
807	III. 21	$\begin{smallmatrix} h & m & s \\ 10 & 51 & 39.8 \end{smallmatrix}$	$\begin{smallmatrix} \circ & ' & '' \\ 76 & 55 & 39 \end{smallmatrix}$	e F; R	242

No.	Synonym.	R 1830-0.	N.P.D. 1830-0.	Description and Remarks.	Sweep.
808	Nova.	$\begin{smallmatrix} h & m & s \\ 10 & 52 & 10.2 \end{smallmatrix}$	$\begin{smallmatrix} ^{\circ} & ' & '' \\ 61 & 22 & 17 \end{smallmatrix}$	vF; R; bM	343
		12.9	61 22 52	cF; has a S * sp	115
809	III. 498	$\begin{smallmatrix} h & m & s \\ 10 & 52 & 26.4 \end{smallmatrix}$	$\begin{smallmatrix} ^{\circ} & ' & '' \\ 85 & 27 & 8 \end{smallmatrix}$	No description	143
		27.2	28 5	F; mE, 60° with merid; 60" l; 15...20" br	141
		28.2	28 26	cF; sky perfectly clear	142
810	I. 88	$\begin{smallmatrix} h & m & s \\ 10 & 53 & 55.0 \end{smallmatrix}$	$\begin{smallmatrix} ^{\circ} & ' & '' \\ 61 & 6 & 20 \end{smallmatrix}$	pB; E. Pos by diag 120° ±. Nucleus has stars in and about it	68
		55.1	7 7	B; E; v s v m b M, to nucl; many v S stars about it	343
		55.3	7 3	vB; a * 10 m with an E neb and a S * 25" f	415
		55.7	6 36	B; pL; R; s m b M to a *; 60"; r; st seen	65
		57.4	7 20	pB; S; E; comes up to nucleus	57
		...	.....	Viewed past merid. vB; E; s m b M; has a * f involved	115
		...	7 6	B; mE; comes up to a nucleus	66
811	III. 22	$\begin{smallmatrix} h & m & s \\ 10 & 54 & 18.9 \end{smallmatrix}$	$\begin{smallmatrix} ^{\circ} & ' & '' \\ 78 & 0 & 15 \end{smallmatrix}$	F; R; bM	340
		19.1	1 33	F; S; R; v g v l b M	120
		19.9	0 24	cF; R	242
812	IV. 7	$\begin{smallmatrix} h & m & s \\ 10 & 54 & 22.4 \end{smallmatrix}$	$\begin{smallmatrix} ^{\circ} & ' & '' \\ 70 & 56 & 52 \end{smallmatrix}$	a * 9 m with v F neb attached; pos 70° s p = 200° 0 ± dist 30"	63
		24.3	57 13	v F neb with a v F nucl; has a * 10 m, n f dist ± diam of n from edge; pos = 30° 0, and another sp of 10 m dist 3'.	354
813	II. 365	$\begin{smallmatrix} h & m & s \\ 10 & 54 & 26.9 \end{smallmatrix}$	$\begin{smallmatrix} ^{\circ} & ' & '' \\ 60 & 11 & 41 \end{smallmatrix}$	Has a * 7 m dist 8' pos 40° n p	66
		29.1	12 52	pB; mE; nearly in merid; bM	115
814	II. 507	$\begin{smallmatrix} h & m & s \\ 10 & 54 & 34.8 \end{smallmatrix}$	$\begin{smallmatrix} ^{\circ} & ' & '' \\ 105 & 22 & 24 \end{smallmatrix}$	F; lE; bM; vL; involves a * 45° n f from the nucleus	111
815	Nova.	$\begin{smallmatrix} h & m & s \\ 10 & 54 & 49.9 \end{smallmatrix}$	$\begin{smallmatrix} ^{\circ} & ' & '' \\ 61 & 2 & 9 \end{smallmatrix}$	F; R; p g b M; 35"; sky dull	416
816	II. 336	$\begin{smallmatrix} h & m & s \\ 10 & 54 & 53.8 \end{smallmatrix}$	$\begin{smallmatrix} ^{\circ} & ' & '' \\ 16 & 30 & 42 \end{smallmatrix}$	A singular object. A burred star 11 m diam 12"; v s m b M; a D * follows.	352
817	II. 884	$\begin{smallmatrix} h & m & s \\ 10 & 55 & 24.4 \end{smallmatrix}$	$\begin{smallmatrix} ^{\circ} & ' & '' \\ 32 & 33 & 47 \end{smallmatrix}$	cF; R; 12"; v g l b M	323
818	I. 13	$\begin{smallmatrix} h & m & s \\ 10 & 57 & 6.4 \end{smallmatrix}$	$\begin{smallmatrix} ^{\circ} & ' & '' \\ 89 & 7 & 17 \end{smallmatrix}$	vB; L; mE (pos by diag = 140° ±); 4' l, 1' br; v s v m b M. The nucleus is rather excentric, being rather towards the s p side.	144
819	III. 23	$\begin{smallmatrix} h & m & s \\ 10 & 57 & 39.0 \end{smallmatrix}$	$\begin{smallmatrix} ^{\circ} & ' & '' \\ 77 & 41 & 28 \end{smallmatrix}$	pF; S; lE; s f a * 12 m	338
		39.1	41 44	vF; R; bM; has 2 st exactly in a line with centre (by diag n p), one 11.12 m, the other 13.14.	242
		39.4	41 50	not vF; E; p s b M; s f a * 11 m	340
820	III. 350	$\begin{smallmatrix} h & m & s \\ 10 & 58 & 0.9 \end{smallmatrix}$	$\begin{smallmatrix} ^{\circ} & ' & '' \\ 60 & 33 & 41 \end{smallmatrix}$	cF; has a * 10.11 m, 60" p	66
		3.6	33 35	cF; a * 10 m precedes, and a D * points downwards (to s) between them.	68
		5.6	34 21	The faintest imaginable. Follows l' a * 11 m	65
		10.1	.....	Follows a star. (Evidently a hurried obs.)	57
821	III. 915	$\begin{smallmatrix} h & m & s \\ 10 & 58 & 32.3 \end{smallmatrix}$	$\begin{smallmatrix} ^{\circ} & ' & '' \\ 31 & 51 & 47 \end{smallmatrix}$	cF; S; R; p g b M; 10"	323
822	Nova.	$\begin{smallmatrix} h & m & s \\ 10 & 59 & 41.1 \end{smallmatrix}$	$\begin{smallmatrix} ^{\circ} & ' & '' \\ 60 & 37 & 32 \end{smallmatrix}$	F; S; R; bM; 15...20"	115
823	III. 111	$\begin{smallmatrix} h & m & s \\ 10 & 59 & 44.0 \end{smallmatrix}$	$\begin{smallmatrix} ^{\circ} & ' & '' \\ 84 & 15 & 3 \end{smallmatrix}$	F; R; bM; sky perfectly clear	143
824	Nova.	$\begin{smallmatrix} h & m & s \\ 10 & 59 & 52.6 \end{smallmatrix}$	$\begin{smallmatrix} ^{\circ} & ' & '' \\ 53 & 3 & 2 \end{smallmatrix}$	pF; R; p s b M; 20"; a * 7 m p dist 7...8'	331
825	Nova.	$\begin{smallmatrix} h & m & s \\ 10 & 59 & 53.4 \end{smallmatrix}$	$\begin{smallmatrix} ^{\circ} & ' & '' \\ 60 & 24 & 47 \end{smallmatrix}$	cF	343
826	III. 920	$\begin{smallmatrix} h & m & s \\ 11 & 0 & 38.8 \end{smallmatrix}$	$\begin{smallmatrix} ^{\circ} & ' & '' \\ 27 & 44 & 18 \end{smallmatrix}$	cF; S; 15"; appears hairy	406

No.	Synonym.	R. 1830-0.	N.P.D. 1830-0.	Description and Remarks.	Sweep.
827	Nova.	h m s 11 1 1.4	53 2 52	e F; R; a * 8 m precedes	401
828	II. 42	11 1 4.8	78 21 15	F; S; 1 E; of nearly uniform brightness	120
829	III. 351	11 1 25.4	60 18 33	p B; has a * foll, dist 1'	415
		25.4	18 57	p F; R; 25"; the first of a group of 4	343
		25.8	20 22	v F; S; R	115
		26.3	19 4	F; S; R; b M; 20", a B * follows, dist 1'	66
		27.4	18 31	B; S; precedes a * 9 m dist 1'. The first of a group	65
		34.0	19 17	e F; 1' preceding a * 9 m	68
830	II. 337	11 1 25.4	16 12 16	p F; 1 E; g b M; 20"; a * 15 m dist 70"; pos from neb = 22° 1	382
831	V. 46	11 1 26.4	33 25 0	B; v l; p b r; v m E; pos 75° 0. Has a distinct * in centre and 1 or 2 v S at elsewhere.	324
832	III. 352	11 1 29.4	60 24 37	v F; the second of 4	343
		30.9	23 13	e F	415
		35.8	22 10	So excessively F as hardly to be discerned on long attention. The second of a group of 3.	65
833	Nova.	11 1 34.4	60 26 37	e F; the third of a group of 4	343
		...	26 ±	F; R; b M; not v S; P D mistaken 10'; corrected	115
834	III. 79	11 1 51.9	77 53 50	F; R; g b M; 20" (conspicuous). The P D of the working list is 6' out, owing to which I have often before looked for it in vain.	340
835	Nova.	11 1 57.9	60 24 37	v F. The last of a group of 4	343
		58.3	22 11	F; p L; 8' dist from another (III. 351) and 30° s f it	66
		59.4	22 31	e F; the last of 3	65
836	III. 89::	11 2 27.9	83 15 34	v F; wind furious; perhaps only F stars	251
		30.5	15 4	e F; R; s b M; with an appearance of stars	117
837	Nova::	11 4 24.8	105 2 ±	A doubtful object, but probably a nebula	111
838	M. 97	11 4 49.4	34 3 52	A large uniform nebulous disc, diameter 19° 0 of time in R. Quite round, v B; not sharply defined, but yet very suddenly fading away to darkness. A most extraordinary object. See fig 32.	324
839	III. 921	11 5 8.3	28 22 43	v F; L; v g v l b M; 45"; situated in the centre of gravity of a triangle of 3 large stars 5' distance.	406
840	I. 29	11 5 35.2	76 16 23	B; E; p s m b M; 40", 30" br	22
		42.4	15 29	No description	242
		43.9	15 18	No description	338
		...	.....	v F; b M; E in parallel; 20"; viewed and only a rough place taken.	2
841	II. 102	11 6 9.2	74 17 14	No description	418
		...	17 0	p F; v L; g b M; 2' diam	419
842	II. 709	11 6 26.4	47 28 42	p B; S; 1 E; v g b M; 20"	248
843	II. 49	11 6 29.0	70 57 56	B; R; p s m b M; 35"	334
844	III. 27	11 7 44.0	71 5 7	p F	63
		49.5	3 36	F; S; R; 12"	334

No.	Synonym.	At 1830°0.	N.P.D. 1830°0.	Description and Remarks.	Swcep.
843	II. 50	h m s 11 7 54.0 57.0	71 2 12 1 31	v B; R v B; L; R; v m b M; 35".	63 334
846	II. 51	11 7 59.5 61.0	70 56 2 56 1	v B; R p B; p L; R; p s b M; 30".	63 334
847	I. 270	11 8 21.5 26.1 27.7	30 17 43 17 45 17 35	v B; p S; l E; v s v m b M B; R; v s v m b M to a * 11 m p B; p S; R; p s b M. Thick haze	406 344 226
848	I. 271	11 8 34.9	31 4 52	v B; m E; pos 305°0, a nucl and F branches	323
849	II. 521	11 8 42.9 43.6	84 31 3 84 31 0	p B; R; p s b M; 30" B; S; R; s m b M; has a * 10 m, 60° n p, dist 3'.	143 141
850	II. 729	11 8 46.9	43 19 17	F; p L; g l b M; r	139
851	III. 333	11 9 3.6	65 39 58	p F; s m b M; stellar.	407
852	II. 835?	11 9 24.0	31 20 22	p B; R; p s m b M; 45". The PD differs 7' from that assigned by my Father; query therefore if the same object.	323
853	II. 879	11 9 40.4	21 49 43	p F; S; R; g b M; 15".	412
854	M. 65	11 10 1.0 2.4 4.1 ...	75 59 16 58 54 58 44 60 12.2	B; R; g b M. Cloudy, but place well taken. (See fig 53.) .. F; L; E with a R nucleus; g b M; 4' l a L, res centre with 2 F branches, E in a pos 45° n p to s f .. Place very rude. R; g b M; 20...30". (It must have been very ill seen.)	241 243 242 3
855	Nova.	11 10 7.2	81 33 4	c F	117
856	II. 52	11 11 6.2	70 43 6	B; R; s b M; 20".	334
857	M. 66	11 11 16.9	76 5 47 3 ± 5 32	v B; v L; s b M; 3' l, 2' br; E 60° n p to s f in direction of 2 at 10 m, p. p B; g b M; E towards 2 stars n p F; g b M; E; has 2 stars n p	22 2 3
858	I. 226	11 11 18.6	35 54 17	p B; L; R; s m b M; 2' diam	324
859	V. 6	11 11 22.4 22.4 24.0 24.1	75 27 42 28 55 28 58 28 59	A v long narrow ray v g b M; 15' long, a most curious object. E by diag in pos 105°0. (See fig 51.) p B; v Long; pos 100°5; 6' l, 1' br; v g b m F; v L; v m E; v g l b M; 8' l, 2' br; pos 103°3 p F; L; v m E, pos = 101°0; v g b M; a ray.	24 340 338 242
860	II. 338	11 11 25.0 26.2 26.5 26.6 27.0 28.4 29.6	62 5 52 6 47 6 11 6 34 6 32 5 53 6 51	F; p L F; L; R; v g b M; 2½' diam. F; L; b M; 2' or 2½' diam v F; R; v g b M; has * 14 m s f dist 60" not v B; v L; irreg R; v g l b M v F; L; R; v g l b M. F; p L; R; has a small * s f	68 343 66 416 115 415 57
861	II. 32	11 11 32.3 32.6	86 6 30 6 14	B; R; s m b M to nucl; 25" p B; R; b M almost to nucl.	141 238

No.	Synonym.	R 1830-0.	N.P.D. 1830-0.	Description and Remarks.	Sweep.				
862	II. 550	h m s 11 11 50.6 51.1	s s s 99 20 42 21 9	F; v S; R; 10" p B; R; stellar; n p a * 7 m p B; R; n f a * 7 m F; v S; R; p s b M; 10" B; R; p s b M; 30" B; R; p g b M; viewed past merid B; R; g b M; r; 45" v F; R; g b M; 30" p B; R; g b M; 40"; windy v F; R; g b M; haze thick F; L; E; 2' long. The s p of two p F; v L; R; g b M; 60"; the p of 2 p B; S; E; b M. p B; p m E; S; has a suspicious nucleus, as if a v F close D * v F; p L; R; g b M; 30". R A estimated from that of III. 15.. v F; S; R; the n f of 2 F; R; g b M; the n p of 2 F; p L; wires visible in twilight v F; the s f of 2 p B; l E; g b M; 18" B; R; p s m b M; 35" B; R; p s b M; 25".... 30"..... p B; R; v g l b M; 20"; a * 12 m p v L; G' l, 4' br; first v g, then v s v m b M Viewed; v B; v L; v s b M. (See fig 54.) Not v F; v S; R. Approaching to stellar F; R; about a stellar point 17 m. Viewed. Nothing remarkable in its character to place it in the 4th class. v F; R. A star 13.14 m with a F, S, nebulous brush. F; R; g b M; 15". A * 9 m is 16' p, 3' n p B; R; p s b M; 45" v B; R; p g m b M; 50"; r. AR 16" 33' 3 by obs, but the minute must have been mistaken as my father makes it 15, with which Sw 401 agrees. F; p L; p m E nearly in parallel. It precedes the * 1341 A. S. C. 34' 0. Pos with * 234° 8. F; 2nd class; E in parallel. e F; 2nd or 3rd class. The B * 1341 A. S. C. follows it. This neb must have changed greatly if it ever belonged really to the 1st class. v F; m E; v l b M; 60" l 863	II. 551	11 12 5.1 5.3	99 19 29 18 44		136 129 129 136 143 238 406 404 344 226 59 334 335 334 59 56 73 56 421 419 418 324 338 340 328 335 73 63 144 411 401 335 338 243 242 323
864	II. 33	11 12 21.2 ...	85 50 3 51 ±						
865	I. 245	11 12 22.8 24.6 24.7 26.0	29 59 58 59 14 60 22 60 0						
866	III. 15	11 12 45.2 46.4	68 54 30 54 31						
867	II. 32	11 12 46.1	86 7 ±						
868	Nova.	11 13 13.0	49 12 46						
869	III. 16	11 13 16.4 18.4	68 52 1 51 46						
870	III. 335	11 13 25.7	64 46 13						
871	II. 775	11 13 28.4	51 17 59						
872	III. 336	11 13 30.4	64 47 58						
873	I. 5	11 13 57.6 59.5 59.8	72 28 1 29 7 28 49						
874	II. 782	11 13 58.0	35 13 32						
875	Nova.	11 14 11.5 ...	76 5 3						
876	III. 768	11 14 16.3	36 8 53						
877	IV. 59	11 14 45.1 ...	50 32 11						
878	II. 53	11 14 47.5	71 15 37						
879	IV. 4	11 15 7.8	90 10 2						
880	II. 845	11 15 26.9	25 37 11						
881	I. 219	11 15 30.9 33.3	50 18 22 19 16						
882	I. 20	11 15 37.0 37.4 38.4	77 44 8 42 34 43 49						
883	II. 829	11 15 40.5	31 21 2						

No.	Synonym.	R 1830-0.	N.P.D. 1850-0.	Description and Remarks.	Surcp.
884	III. 337	^h ^m ^s 11 15 49.7	^h ^m ^s 65 6 43	cF; vS; R	407
885	III. 922	11 16 9.1	28 35 18	This must be my father's neb. but it is a suspicious object, and I doubt whether it be not a little knot of 3 or 4 stars.	406
886	I. 131	11 16 27.3	98 52 ±	pB; pL; E in merid.	136
		...	51 55	F; L; E in direction of merid	129
887	I. 194	11 16 46.8	45 28 23	Seen through thick cloud	240
		48.0	28 47	vB; L; mE; v s b M; 2' 1, 40" br. Many stars 14 & 15 m precede.	248
888	Nova.	11 16 53.7	42 4 57	S; R; v s b M to a * 16 m	139
		55.7	4 12	cF; v s b M to * 16 m; 2 at 11 m, n f, point to it at twice their distance.	350
889	Nova.	11 17 11.7	61 11 52	vF; R; p s b M; 25". Is 2' s p a * 12 m.	343
890	I. 262	11 17 30.8	22 28 41	pB; R; v s b M almost to a *; 30"	412
891	II. 159	11 17 34.6	72 12 20	vB; R; p s b M; 40"; has at foll.	419
		34.7	12 21	pF; R; g b M; 20...23"	421
		35.3	12 19	vB; R; p s b M; 50...60"	418
892	I. 246	11 17 49.9	52 11 5	E; haze so that I can barely be certain that a nebula exists	226
893	Nova.	11 18 16.0	72 1 46	pF; R; g b M; 25"	421
		20.5	3 41	cB; L; E; v g b M; 100" diam	354
		...	1 54	pF; R; g b M; 45"; R observed 3" 6, but was taken past merid by comparison with a distant star, by a process liable to great errors.	418
894	II. 160 } III. 28 }	11 18 49.2	71 51 7	B; L; R; b M; has a L * n and a smaller one s	63
		49.8	50 36	B; vL; E; v g b M; 2' diam. Near a *	394
		...	50 0	pB; pL (N.B. II. 160 and III. 28 are probably identical).	61
895	II. 770	11 18 53.7	59 32 51	F; R; 30"	64
		55.3	33 11	B; L; R; r	66
		56.8	32 27	pB; R; 40...50"	68
		57.4	33 4	Not vF; R; g b M; 25"	341
		57.8	33 21	pB; R; s b M; 30...40"	65
896	I. 147	11 19 1.6	30 31 52	B; R; p g b M. Query whether there be not a * excentric towards the s f side. (N.B. The obs makes PD=31°, &c., but this must be a mistake. See next obs and my Father's place.)	323
		...	29 55	F; S; R; b M; has a * near, s	226
897	II. 339	11 19 10.2	63 24 43	B; pL; g b M; 1E	56
898	II. 54	11 19 14.8	72 8 39	No description	418
		15.7	8 55	F; E; 40"; has a * 10 m 5' s p	410
899	Nova.	11 19 45.9	53 38 47	Not vF; R; s b M almost to a *; 20"	331
900	Nova.	11 19 55.3	68 15 58	cF; vS; E in parallel	59
901	II. 349	11 20 30.2	64 57 58	pB; 1E	407
902	II. 13	11 21 20.4	79 47 10	F; pL; v s b M; haze troublesome	123
903	Nova.	11 21 27.1	79 42 25	pB; S; E in parallel; 40" l. Taken for II. 13, and the R set down from the working list, being missed. But it appears to be a different nebula.	120

No.	Synonym.	R 1830-0.	N.P.D. 1830-0.	Description and Remarks.	Sweep.
904	II. 350	^h ^m ^s 11 22 8.9	[°] ['] ["] 66 17 45	F; has a * 7.8 m n f dist 5'	244
905	Nova.	11 22 39.6	60 34 11	v F; R; s m b M	64
		...	36 ±	F; v S; R; b M. Rough P.D., being past meridian	68
906	II. 367	11 22 41.0	60 54 13	No description	68
		41.7	54 6	F; R; s b M. No companion seen	66
		42.2	55 7	S; R; s b M, almost to a nucleus	57
907	III. 353	11 22 52.2	60 42 27	F; S; R; 12"; no other near on the same parallel	343
		53.6	42 19	Not v F; R; p s b M; 15"	416
		53.7	41 32	Not v F; S; R; p s b M; 20"	417
		...	43 ±	Rough P.D., being much past merid	115
908	I. 221	11 23 5.5	35 59 58	F; v L; R; v g l b M; 2' diam; near a double star	328
		6.7	68 57	p B; v L; 1 E; v g b M; 5' diam; has a coarse double * s p ..	324
909	II. 836	11 23 59.3	27 10 51	Not v F; R; g b M; 40"	406
		60.4	12 22	e F, but sky not perfectly clear. The obs makes the R 23 ^m 0.4, but it is clear from the former obs and my father's, which agree, that it should be 24 ^m 0.4.	344
910	II. 730	11 24 5.6	42 1 36	p B; v L; E in merid; v g b M; 4' l, 2' br; has a * at its northern extremity.	320
		6.4	0 27	p B; v L; 1 E; at first v g and then v s b M to a * 15 m. 2' l, 90" br; a * 11 m to n.	330
911	I. 222	11 24 22.3	35 55 52	Not B; L; 1 E; a * 12 m s p very near the edge	324
912	II. 351	11 24 27.2	64 37 3	F; S; R; b M	58
913	II. 552	11 25 36.1	98 54 4	S; R; p s b M; 15"; has a * 14 m, 45° s p	129
		37.3	53 38	F; R; b M; has a * 14 m s p	136
914	I. 287	11 25 56.3	18 31 37	F; m E, in pos 130° 4; b M; 90" l, 12" br	377
915	III. 847	11 26 42.2	29 5 18	v F; R; v g b M; 20"	406
916	Nova.	11 26 56.0	43 46 27	v F; R; v g b M; 20"	139
917	III. 905	11 27 9.7	13 47 1	e F	414
918	II. 784	11 27 24.9	34 45 47	F; L; 1 E; 4' diam; brighter and larger than I. 222	324
919	III. 843	11 27 27.7	30 39 22	v F; R; 15". Has a v S * s f rather more than a diameter from edge (by diagram).	323
920	Nova.	11 27 28.6	52 39 7	e F; p m E; p L; g b M	331
921	II. 837	11 27 47.7	27 19 5	e F; R; g b M; sky not quite clear	344
922	Nova.	11 28 7.4	64 57 30	v F; R; 30"	407
923	III. 29	11 28 21.0	71 13 52	Stellar; a burred star	63
924	Nova.	11 28 22.0	72 10 41	v F; S; b M	334
925	II. 731	11 28 30.9	41 9 16	B; S; m E; p g b M; 30" l	329
		33.2	9 2	p B; m E; g b M; 60" l, 30" br	330
926	II. 338	11 28 31.6	29 27 3	B; R; g b M; r; 30"	406
		32.7	26 18	e F, but a sure obs. Sky growing dull. Mirror tarnished ..	404
927	II. 352	11 28 52.5	66 22 45	e F; E	244
		54.7	22 30	v F; S	50

No.	Synonym.	R. 1830-0.	N.P.D. 1830-0.	Description and Remarks.	Sweep.
928	III. 81	^h 11 29 23.1 ^m 28.0 ^s 56 55	^h 76 56 39 ^m 56 55	F; S; R; b M p F; R; p s b M. The only object in the sweep. The place reduced by the obs of the preceding and following sweep, is precarious.	242 339
929	I. 227	11 30 0.8 3.6	32 47 37 47 22	F; L; R; v g b M; 60". (Twilight.) c F; L; v g l b M; 90"	345 323
930	II. 732	11 30 24.7	42 35 37	A * 15 m with a nebulous tail n f which touches another star.	139
931	Nova.	11 30 42.9 43.3 44.6	57 9 12 8 41 8 35	p B; p m E; p g b M; 50" l, 30" br. The first of 2 The s p of 2; less B and smaller than the n f B; p L; E; g b M; 40 or 50" l	342 74 337
932	Nova.	11 30 45.9 46.3 47.6	57 7 22 7 31 7 15	p B; m E; p g b M; 90" l, 40" br; the second of 2..... p B; E in merid; g b M; 40... 50" l; the n f of two..... B; p L; p m E; 50... 60" l; 40" br	342 74 337
933	III. 109	11 30 53.2	71 22 1	The first of 3	61
934	Nova.	11 30 59.6 80.8	73 43 45 43 54	F; v S; p m E; s b M; the first of 3	334
				F; R; the preceding of 2; has 3 s t s	419
				F; R; forms an appendage to II. 103, which it precedes. One or other of these right ascensions has some mistake, which pervades the observations of both nebulae. (See below.)	418
935	III. 609	11 31 3.8	98 25 17	v F; R; g b M; 20"; has a * 8 m 6' s, on same merid	136
936	II. 103	11 31 4.1 8.8 23.5 24.8 24.9	73 42 55 42 26 42 49 42 39 42 29	F; m E; g b M; the f of 2. This and the next R are probably affected by the mistake above noticed. p F; p L; l E; g b M; near a B st F; E n f to s p; has another F neb attached to its preceding extremity. (See fig 79.) p B; E; p g b M; has another s p.....	419 421 24 418
937	II. 839	11 31 4.7 10.3	28 46 16 46 18	p B or not v F; l E; g l b M	422
				v F; p s b M; by obs R = 30" 4' 7; but this is proved to be erroneous by the coincidence of Sw 406 with my father's R.	344
				p B; R; 35"; p g b M	406
938	II. 340	11 31 20.2	64 21 38	p B; S; R; r; 20"	58
939	II. 161	11 31 25.4 27.2 27.6	71 20 17 19 18 19 51	p B The second of 3	63 61
				p B; p L; g b M; the second of 3	334
940	III. 30	11 31 30.1 31.6 32.3	71 17 26 17 51 20 38	The last of 3	61
				The last of 3	334
				An obs snatched between clouds and probably a mistaken bisec- tion in P.D.	62
941	III. 375	11 31 52.2	68 43 12	Not v F; S; R; b M.....	59
942	II. 737	11 32 7.5 9.6	41 21 6 20 32	F; R; b M; 15"	329
				F; E; g b M; 20"	330

No.	Synonym.	$\mathcal{R}$ 1830-0.	N.P.D. 1830-0.	Description and Remarks.	Sweep.
943	I. 21	^{h m s} 11 32 12.4	77 35 9	No description	242
		12.5	35 5	No description	340
		12.9	35 24	p B; L; 1 E; v g b M; 3' diam	338
		...	35 12	F; R; g b M; 30...40"; the $\mathcal{R}$ of this sweep and both the $\mathcal{R}$ and P.D. of the next obs too roughly determined to be set down.	3
		...	...	v F; R; v g b M; a * 9 m 15' dist in parallel.	2
944	III. 320	11 32 14.0	64 14 13	F; R; has a * 6.7 m s f, dist 3'	407
945	I. 94	11 32 17.1	52 29 46	p B; p L; 50" l, 60" br; E in parallel; hazy	72
		18.1	31 2	B; p L; 1 E; 40" l, 30" br; v g l b M	331
		18.5	30 31	v B; L; m E nearly in parallel; 3' long; m b M; a * f	70
946	III. 329	11 32 46.0	64 13 33	Not v F; p L; 30"	407
947	Nova.	11 33 7.4	78 45 45	F. The first of 4	120
948	III. 284	11 33 15.9	95 13 16	B; R; p s b M; 30". At least 2nd class.	147
949	III. 376	11 33 18.3	68 43 47	v F; S; R; p s b M; a * 11 m prec 10" 0	246
		19.2	45 10	Not v F; S; R; g b M	59
950	Nova.	11 33 18.9	78 44 45	v F; the second of 4; place estimated from the others.	120
951	II. 153	11 33 25.4	78 47 15	p B; the third of 4	120
952	III. 774	11 33 32.5	36 16 53	v F; p m E	328
953	II. 154	11 33 38.4	78 48 5	p B; the last of 4	120
954	II. 341	11 33 39.7	62 34 17	No description	343
		39.9	33 35	p B; R; p s b M; 15". Good obs.	417
		40.8	34 17	No description	115
955	III. 775	11 34 13.7	36 19 53	e F	328
956	Nova.	11 34 22.3	62 33 34	Cloudy; hardly discernible	416
957	Nova.	11 34 40.3	101 55 24	F; v S; R; b M. Well observed	129
958	Nova.	11 34 44.0	28 57 0	p F; 1 E; g b M; precedes * 8 m, 5' dist	344
		46.3	56 38	p B; p m E; p g b M; has a D * 8 m, n f	406
959	II. 831	11 34 49.5	31 5 50	v F; p m E; p s b M to nucl = * 12 m. Twilight	345
		51.7	6 57	B; S; a nucleus with an extended burr; 15" long. PD by Sw 32°, corrected to 31, which is the true degree.	323
960	Nova.	11 34 56.4	69 5 47	F; R	63
		61.6	6 1	v F; S; the first of 4	334
961	Nova.	11 35 3.4	69 10 27	F; R	63
		7.6	10 0	v F; p S	334
962	III. 377	11 35 8.1	69 6 41	p B; v g b M; the third of 4	334
		10.4	8 7	p B; R; the last of 3	63
		13.2	6 57	v F; R; the s p of two	59
963	Nova.	11 35 13.1	69 4 11	v F; p S; the last of 4. There are however 3 or 4 more nebulae in this neighbourhood.	334
964	Nova.	11 35 15.4	33 24 42	F; p L; R; v g b M	324
965	Nova.	11 35 18.8	55 32 20	Not v F; S; R; p s b M	337

No.	Synonym.	Δ 1830-0.	N.P.D. 1830-0.	Description and Remarks.	Sweep.
966	III. 378	$\begin{smallmatrix} h & m & s \\ 11 & 35 & 32.7 \end{smallmatrix}$	$\begin{smallmatrix} ^{\circ} & ' & '' \\ 69 & 5 & 35 \end{smallmatrix}$	v F; R; the n f of 2	59
967	Nova.	$\begin{smallmatrix} h & m & s \\ 11 & 36 & \pm \end{smallmatrix}$	$\begin{smallmatrix} ^{\circ} & ' & '' \\ 55 & 57 & \pm \end{smallmatrix}$	e F; R; g b M. The preceding of 3 forming an equilateral triangle. Place very rough.	337
968	Nova.	$\begin{smallmatrix} h & m & s \\ 11 & 36 & \pm \end{smallmatrix}$	$\begin{smallmatrix} ^{\circ} & ' & '' \\ 55 & 54 & 0 \end{smallmatrix}$	e F; R; g b M. The second of 3	327
969	Nova.	$\begin{smallmatrix} h & m & s \\ 11 & 36 & \pm \end{smallmatrix}$	$\begin{smallmatrix} ^{\circ} & ' & '' \\ 55 & 57 & \pm \end{smallmatrix}$	e F; R; g b M. The last of 3	337
970	Nova.	$\begin{smallmatrix} h & m & s \\ 11 & 36 & 12.2 \end{smallmatrix}$	$\begin{smallmatrix} ^{\circ} & ' & '' \\ 69 & 4 & 21 \end{smallmatrix}$	F; S; R; b M. Doubtful	61
971	Nova.	$\begin{smallmatrix} h & m & s \\ 11 & 36 & 54.8 \end{smallmatrix}$	$\begin{smallmatrix} ^{\circ} & ' & '' \\ 78 & 14 & 2 \end{smallmatrix}$	F; S; s b M; irreg 6g; r	19
		$\begin{smallmatrix} h & m & s \\ & 59.9 & \end{smallmatrix}$	$\begin{smallmatrix} ^{\circ} & ' & '' \\ & 13 & 52 \end{smallmatrix}$	F; R; p s b M	22
972	III. 833	$\begin{smallmatrix} h & m & s \\ 11 & 36 & 55.0 \end{smallmatrix}$	$\begin{smallmatrix} ^{\circ} & ' & '' \\ 38 & 51 & 13 \end{smallmatrix}$	v F; a doubtful object. Query if not a D * 6" dist involved in a nebula.	328
		$\begin{smallmatrix} h & m & s \\ & 57.6 & \end{smallmatrix}$	$\begin{smallmatrix} ^{\circ} & ' & '' \\ & 51 & 31 \end{smallmatrix}$	F; S; R; p s b M	329
		$\begin{smallmatrix} h & m & s \\ & 60.9 & \end{smallmatrix}$	$\begin{smallmatrix} ^{\circ} & ' & '' \\ & 51 & 17 \end{smallmatrix}$	Foggy	330
973	II. 104	$\begin{smallmatrix} h & m & s \\ 11 & 37 & 1.1 \end{smallmatrix}$	$\begin{smallmatrix} ^{\circ} & ' & '' \\ 75 & 17 & 0 \end{smallmatrix}$	B; S; R; p s b M; 10"	419
		$\begin{smallmatrix} h & m & s \\ & 2.9 & \end{smallmatrix}$	$\begin{smallmatrix} ^{\circ} & ' & '' \\ & 17 & 49 \end{smallmatrix}$	B; R; v s m b M, to a * 11 m; 40"	242
		$\begin{smallmatrix} h & m & s \\ & 3.4 & \end{smallmatrix}$	$\begin{smallmatrix} ^{\circ} & ' & '' \\ & 17 & 51 \end{smallmatrix}$	p B; S; R; s m b M; 15"; compact	338
974	Nova.	$\begin{smallmatrix} h & m & s \\ 11 & 37 & 21.9 \end{smallmatrix}$	$\begin{smallmatrix} ^{\circ} & ' & '' \\ 55 & 51 & 21 \end{smallmatrix}$	v F; R; the first in an unequally divided line of 3. More suspected.	74
975	Nova.	$\begin{smallmatrix} h & m & s \\ 11 & 37 & 26.9 \end{smallmatrix}$	$\begin{smallmatrix} ^{\circ} & ' & '' \\ 55 & 53 & 21 \end{smallmatrix}$	v F; R; b M; the second of an unequally divided line of 3 ..	74
976	Nova.	$\begin{smallmatrix} h & m & s \\ 11 & 37 & 40.4 \end{smallmatrix}$	$\begin{smallmatrix} ^{\circ} & ' & '' \\ 55 & 57 & 6 \end{smallmatrix}$	v F; R; the third of an unequally divided line of 3	74
977	Nova.	$\begin{smallmatrix} h & m & s \\ 11 & 37 & 57.4 \end{smallmatrix}$	$\begin{smallmatrix} ^{\circ} & ' & '' \\ 68 & 39 & 40 \end{smallmatrix}$	p F; n f a * 7 m; $\Delta \Delta = 4.5$; dist 5'	409
		$\begin{smallmatrix} h & m & s \\ & 60 \pm & \end{smallmatrix}$	$\begin{smallmatrix} ^{\circ} & ' & '' \\ & 40 & 49 \end{smallmatrix}$	v F; R; g b M. (Taken past merid. Δ estimated. PD too great.)	59
978	II. 785	$\begin{smallmatrix} h & m & s \\ 11 & 38 & 27.0 \end{smallmatrix}$	$\begin{smallmatrix} ^{\circ} & ' & '' \\ 33 & 5 & 17 \end{smallmatrix}$	p B; E; g b M	323
		$\begin{smallmatrix} h & m & s \\ & 31.5 & \end{smallmatrix}$	$\begin{smallmatrix} ^{\circ} & ' & '' \\ & 5 & 32 \end{smallmatrix}$	p B; E; p g b M. Twilight	345
979	I. 120	$\begin{smallmatrix} h & m & s \\ 11 & 38 & 27.1 \end{smallmatrix}$	$\begin{smallmatrix} ^{\circ} & ' & '' \\ 105 & 54 & 55 \end{smallmatrix}$	F; L; has * 11 m 5" n f. Twilight	149
980	II. 723	$\begin{smallmatrix} h & m & s \\ 11 & 39 & 11.1 \end{smallmatrix}$	$\begin{smallmatrix} ^{\circ} & ' & '' \\ 58 & 41 & 51 \end{smallmatrix}$	B; R; s b M; 20...30"	63
		$\begin{smallmatrix} h & m & s \\ & 11.5 & \end{smallmatrix}$	$\begin{smallmatrix} ^{\circ} & ' & '' \\ & 41 & 19 \end{smallmatrix}$	e F. Seen through cloud	341
		$\begin{smallmatrix} h & m & s \\ & 11.5 & \end{smallmatrix}$	$\begin{smallmatrix} ^{\circ} & ' & '' \\ & 41 & 24 \end{smallmatrix}$	not v F; R; g b M; 40"	342
981	II. 553	$\begin{smallmatrix} h & m & s \\ 11 & 39 & 22.0 \end{smallmatrix}$	$\begin{smallmatrix} ^{\circ} & ' & '' \\ 100 & 0 & 35 \end{smallmatrix}$	L; R; g b M; 60"; r	129
982	II. 738	$\begin{smallmatrix} h & m & s \\ 11 & 39 & 37.1 \end{smallmatrix}$	$\begin{smallmatrix} ^{\circ} & ' & '' \\ 40 & 20 & 26 \end{smallmatrix}$	B; p L; R; g b and p s m b M; 60'	329
983	I. 248	$\begin{smallmatrix} h & m & s \\ 11 & 39 & 40.7 \end{smallmatrix}$	$\begin{smallmatrix} ^{\circ} & ' & '' \\ 29 & 38 & 36 \end{smallmatrix}$	B; p L; R; p g m b M; the prec of 2	406
		$\begin{smallmatrix} h & m & s \\ & 41.6 & \end{smallmatrix}$	$\begin{smallmatrix} ^{\circ} & ' & '' \\ & 38 & 50 \end{smallmatrix}$	F; R; g b M; 20"	344
984	II. 832	$\begin{smallmatrix} h & m & s \\ 11 & 39 & 52.3 \end{smallmatrix}$	$\begin{smallmatrix} ^{\circ} & ' & '' \\ 29 & 37 & 51 \end{smallmatrix}$	F; p L; E; g b M. The foll of 2	406
985	I. 228	$\begin{smallmatrix} h & m & s \\ 11 & 40 & 5.1 \end{smallmatrix}$	$\begin{smallmatrix} ^{\circ} & ' & '' \\ 32 & 59 & 5 \end{smallmatrix}$	B; R; s m b M; 30"; hazy	346
		$\begin{smallmatrix} h & m & s \\ & 6.1 & \end{smallmatrix}$	$\begin{smallmatrix} ^{\circ} & ' & '' \\ & 57 & 45 \end{smallmatrix}$	B; p L; R. Seen through thick haze	226
		$\begin{smallmatrix} h & m & s \\ & 11.2 & \end{smallmatrix}$	$\begin{smallmatrix} ^{\circ} & ' & '' \\ & 58 & 22 \end{smallmatrix}$	p B; E; g b M; like II. 785, but brighter	323
		$\begin{smallmatrix} h & m & s \\ & 13.1 & \end{smallmatrix}$	$\begin{smallmatrix} ^{\circ} & ' & '' \\ & 58 & 32 \end{smallmatrix}$	B; p L; R; p s m b M; 60"	345
986	II. 468	$\begin{smallmatrix} h & m & s \\ 11 & 40 & 6.6 \end{smallmatrix}$	$\begin{smallmatrix} ^{\circ} & ' & '' \\ 54 & 1 & 47 \end{smallmatrix}$	p F; R	331
		$\begin{smallmatrix} h & m & s \\ & 6.9 & \end{smallmatrix}$	$\begin{smallmatrix} ^{\circ} & ' & '' \\ & 0 & 48 \end{smallmatrix}$	F; S; R; near a small *	72
		$\begin{smallmatrix} h & m & s \\ & 8.0 & \end{smallmatrix}$	$\begin{smallmatrix} ^{\circ} & ' & '' \\ & 2 & 11 \end{smallmatrix}$	F; S; R; b M	70
987	Nova.	$\begin{smallmatrix} h & m & s \\ 11 & 40 & 17.8 \end{smallmatrix}$	$\begin{smallmatrix} ^{\circ} & ' & '' \\ 62 & 36 & 31 \end{smallmatrix}$	p B; R; s m b M	64

No.	Synonym.	Δ 1850-0.	N.P.D. 1850-0.	Description and Remarks.	Sweep.
988 I. 82		$\begin{smallmatrix} h & m & s \\ 11 & 40 & 19.0 \end{smallmatrix}$	$\begin{smallmatrix} \text{h} & \text{m} & \text{s} \\ 62 & 2 & 1 \end{smallmatrix}$	B; L; R; p g b M; fading away to nothing; 40" diam	65
		19.2	1 34	R; b M to nucleus; ζ and haze	67
		19.4	1 13	p F; s b M; ζ	415
		19.9	2 7	B; p L; R; s b M to nucleus; 40"	57
		20.3	1 41	B; R; s b M; 40"	66
		...	2 30 $\pm$	a L and B neb. Imperfect obs past mer	68
989 III. 321		$\begin{smallmatrix} h & m & s \\ 11 & 40 & 26.7 \end{smallmatrix}$	$\begin{smallmatrix} \text{h} & \text{m} & \text{s} \\ 62 & 56 & 28 \end{smallmatrix}$	F; p L; E; v l b M	56
		28.4	55 12	p F; l E; v g b M; 25"	417
990 Nova.		$\begin{smallmatrix} h & m & s \\ 11 & 40 & 47.8 \end{smallmatrix}$	$\begin{smallmatrix} \text{h} & \text{m} & \text{s} \\ 90 & 9 & 7 \end{smallmatrix}$	e F; S; p s b M	146
991 III. 341		$\begin{smallmatrix} h & m & s \\ 11 & 41 & 15 \pm \end{smallmatrix}$	$\begin{smallmatrix} \text{h} & \text{m} & \text{s} \\ 64 & 7 & 46 \end{smallmatrix}$	v F; p L; Δ by working list; past mer	407
992 II. 342		$\begin{smallmatrix} h & m & s \\ 11 & 41 & 15.1 \end{smallmatrix}$	$\begin{smallmatrix} \text{h} & \text{m} & \text{s} \\ 62 & 33 & 50 \end{smallmatrix}$	p B; R; p s b M; 30"	417
		15.2	34 49	p B; p L; R; g h M; 60"	343
		15.9	33 20	v F; R; p s b M; ζ	415
993 II. 787		$\begin{smallmatrix} h & m & s \\ 11 & 41 & 44.1 \end{smallmatrix}$	$\begin{smallmatrix} \text{h} & \text{m} & \text{s} \\ 33 & 54 & 32 \end{smallmatrix}$	e F; R; g b M	324
994 II. 824		$\begin{smallmatrix} h & m & s \\ 11 & 41 & 44.7 \end{smallmatrix}$	$\begin{smallmatrix} \text{h} & \text{m} & \text{s} \\ 37 & 13 & 43 \end{smallmatrix}$	F; v m E; v g b M; 150" l, 30" br	328
995 III. 90		$\begin{smallmatrix} h & m & s \\ 11 & 41 & 45.2 \end{smallmatrix}$	$\begin{smallmatrix} \text{h} & \text{m} & \text{s} \\ 82 & 29 & 7 \end{smallmatrix}$	F; R; 15"; has * 13 m, 70" dist, n p	253
		50.9:	28 39:	F; R; near a * 13 m. Wind outrageous	251
		...	29 $\pm$	F; R; b M; 1' s of a * 9.10 m	117
996 Nova.		$\begin{smallmatrix} h & m & s \\ 11 & 42 & 0 \pm \end{smallmatrix}$	$\begin{smallmatrix} \text{h} & \text{m} & \text{s} \\ 64 & 7 & 48 \end{smallmatrix}$	No desc. Follows III. 341 on same parallel	407
997 II. 768		$\begin{smallmatrix} h & m & s \\ 11 & 42 & 1.0 \end{smallmatrix}$	$\begin{smallmatrix} \text{h} & \text{m} & \text{s} \\ 33 & 58 & 32 \end{smallmatrix}$	p B; R; p s b M	324
998 III. 379		$\begin{smallmatrix} h & m & s \\ 11 & 42 & 38.0 \end{smallmatrix}$	$\begin{smallmatrix} \text{h} & \text{m} & \text{s} \\ 67 & 2 & 20 \end{smallmatrix}$	e F; R; S; near a star	244
999 II. 740		$\begin{smallmatrix} h & m & s \\ 11 & 42 & 49.6 \end{smallmatrix}$	$\begin{smallmatrix} \text{h} & \text{m} & \text{s} \\ 40 & 21 & 56 \end{smallmatrix}$	not v F; S; R; p s p m b M	329
1000 III. 616		$\begin{smallmatrix} h & m & s \\ 11 & 42 & 53.0 \end{smallmatrix}$	$\begin{smallmatrix} \text{h} & \text{m} & \text{s} \\ 51 & 3 & 24 \end{smallmatrix}$	e F; g l b M; a * 7 m foll nearly in the parallel	335
		58.1:	3 17:	e F; precedes a * 7 m in the same parallel, dist about 3'. Place uncertain.	331
1001 Nova.		$\begin{smallmatrix} h & m & s \\ 11 & 43 & 33.1 \end{smallmatrix}$	$\begin{smallmatrix} \text{h} & \text{m} & \text{s} \\ 56 & 39 & 1 \end{smallmatrix}$	p B; R; p s b M	74
		35.6	39 13	p B; S; p m E; p s b M	337
		36.8	38 17	F; R; p s b M; 20"	131
1002 I. 203		$\begin{smallmatrix} h & m & s \\ 11 & 43 & 54.4 \end{smallmatrix}$	$\begin{smallmatrix} \text{h} & \text{m} & \text{s} \\ 44 & 56 & 2 \end{smallmatrix}$	A superb nebula; B; v L; R; 3' diam; v g b M; r; is probably a globular cluster.	248
		57.7	55 7	p B; v L; R; v s b M to a v S star, and very dilute at the borders; 4' diam.	139
1003 III. 389		$\begin{smallmatrix} h & m & s \\ 11 & 43 & 55.8 \end{smallmatrix}$	$\begin{smallmatrix} \text{h} & \text{m} & \text{s} \\ 68 & 25 & 6 \end{smallmatrix}$	v F; S; R	423
1004 Nova.		$\begin{smallmatrix} h & m & s \\ 11 & 44 & 1.2 \end{smallmatrix}$	$\begin{smallmatrix} \text{h} & \text{m} & \text{s} \\ 68 & 4 & 0 \end{smallmatrix}$	e F; R	59
1005 I. 173		$\begin{smallmatrix} h & m & s \\ 11 & 44 & 3.5 \end{smallmatrix}$	$\begin{smallmatrix} \text{h} & \text{m} & \text{s} \\ 52 & 3 & 19 \end{smallmatrix}$	v B; p L; R; p s m b M	73
		3.9	3 1	v B; R; s b M, fading to nothing; 90"	72
		5.5	5 11	v B; R; s m b M, almost to a * 9 m; 60"	70
1006 I. 251		$\begin{smallmatrix} h & m & s \\ 11 & 44 & 11.8 \end{smallmatrix}$	$\begin{smallmatrix} \text{h} & \text{m} & \text{s} \\ 28 & 23 & 3 \end{smallmatrix}$	not v B; R; p g b M; r	406
		16.5	23 25	B; R; p s b M; 60"; a star precedes, $\Delta \Delta = 8^{\circ} 0$, pos from neb = $215^{\circ} 9$.	344

OF NEBULÆ AND CLUSTERS OF STARS.

411

No.	Synonym.	R 1830-0.	N.P.D. 1830-0.	Description and Remarks.	Sweep.
1007	III. 322	^{h m s} 11 44 16.2	^{h m s} 62 50 49	Not vF; R; sbM; 35"	343
		17.3	50 52	pB; R; bM	115
		17.4	50 17	B; R; pabM; 35"	417
1008	II. 403	11 44 34.9	68 18 0	F; mE; bM; a coarse D * precedes	400
		...	18 ±	Seen in its place as per working list	244
1009	I. 202	11 44 46.9	41 12 46	B; mE; vgbM	320
		47.2	11 12	pL; R; gbM; barely visible for fog	330
1010	III. 342	11 44 49.2	65 39 28	vF; S; R	407
1011	V. 45	11 44 52.3	36 43 3	B; L; vsbM; r; 3' diam. Fine object	328
1012	III. 612	11 44 55.2	93 3 9	pF; R; bM	21
		57.0	3 36	F; lE; nearly in parallel rī. Sky perfectly clear	147
		...	4 17.1	vF; lE. Sky not quite clear; PD rough, being taken beyond meridian.	146
1013	Nova.	11 44 57.0	68 10 44	eF; R	59
1014	II. 633	11 45 23.6	30 41 7	pF; lE; gbM; 40" l	345
		28.7	41 32	pF; E; vgbM; 60" l	323
1015	IV. 67	11 45 50.2	30 34 7	F; vL; R; pglbM	323
		54.6	33 35	F; L; R ill defined nebulous mass; obs difficult, owing to haze	226
1016	Nova.	11 46 5.2	60 47 41	vF; E 45 sp from a * 10 m dist 40"	66
		6.7	46 21	A * 10 m with eF neb 45° sp; 30". The neb by a diag made at the time is oval, and forms a kind of appendage to the star.	65
		...	47 22	F; R; near a *	417
1017	IV. 62	11 46 31.5	33 56 0	B; pL; R; nearly uniform, but hazy; diam 25"	324
1018	II. 162	11 46 42.9	77 5 14	pB; R; vgbM; a * 10 m 25° n f, dist 4'..5'	242
		44.9	5 18	pB; L; psm bM; 3' diam	338
1019	II. 724	11 46 46.7	59 3 39	pB; R; bM. An exact obs.	67
1020	Nova.	11 46 47.1	101 5 54	F; S; R; pabM; 15". The p of 2	129
1021	Nova.	11 47 0.6	101 2 44	vF; S; R; bM; 15". The f of 2	129
1022	II. 132	11 47 12.6	82 18 19	B; E 30° n f to sp; vsm bM to nearly a star. The arms very faint.	117
		13.8	17 29	B; E; pabM; 25" l, 15" br	251
		14.2	18 21	vB; mE; vsm bM; 30" l; nucleus equals a star 10 m.	250
1023	II. 840	11 47 18.6	28 32 8	Not vF; lE; has * 8 m following in the parallel	406
		20.7	32 50	vF; a * 9 m f, dist 6'; another precedes 10' dist to the s	344
1024	III. 343	11 47 37.2	65 10 54	F; S; R; pabM	407
1025	III. 707	11 47 49.6	40 42 56	No description	320
1026	Nova.	11 47 50.2	60 3 25	eF; R; bM; 25". Supposed at the time to be II. 724, but on reducing the obs it differs 1" in R and 1° in P.D., both which can hardly be mistakes.	342
1027	Nova.	11 47 56.5	57 1 32	F; S; E; near a *	131
		57.3	2 21	E nearly in parallel; a * 11 m near.	74
		57.5	2 0	pB; mE; pabM; 30" l; near a *	337

No.	Synonym.	At 1830-0.	N.P.D. 1830-0.	Description and Remarks.	Sweep.
1028	Nova.	^h 11 ^m 48 ^s 36.6	[°] 61 ['] 10 ["] 42	v F; R; g b M. The first of 2	343
		...	10 42	v F; S; R; s b M like a *. The p of 2 with several stars between them.	417
1029	II. 791	11 48 39.9	33 36 30	v F; R; p a l b M; 35"; sky dull	346
1030	IV. 61	11 48 41.3	35 40 33	v B; v L; R; s m b M; 3' diam.	328
1031	I. 229	11 48 59.9	33 36 20	B; R; s m b M; 40"; sky dull.	346
1032	Nova.	11 49 0.6	74 45 10	v F; p L; R; has two s t s f	419
		1.9	43 29	No description, (probably a hurried obs)	422
		2.2	45 46	No description	421
1033	III. 323	11 49 3.2	63 47 33	F; v S; E pos 25° n f to s p. Between two stars, 60" dist. (By a diagram made at the time, the neb lies exactly in the line of the two stars which are situated at equal distances from the two extremities, and almost in contact with them. A singular object.)	56
1034	III. 344	11 49 12.8	65 50 38	v F; R; the northern of 2	407
1035	III. 345	11 49 12.8	65 54 58	v F; R; the southern of 2	407
1036	Nova.	11 49 19.4	61 10 42	v F; R; near a * 12 m	417
		20.6	10 0	p F; l E; g b M; the f of 2 in parallel, with a star between ..	343
1037	Nova.	11 49 24.2	91 11 7	F; S; R; b M; s p a * 11 m	146
1038	II. 368	11 49 29.7	60 51 26	F; S; R; b M	64
		29.7	52 1	v B; p L; R; s m b M; 40". Clouded suddenly, and obs left imperfect.	65
		30.1	51 36	p B; R; s b M	66
		31.0	51 34	p B; R; g b M; r	68
1039	Nova.	11 49 31.7	.....	v B; m E; m b M. Taken for II. 368, and no P D taken; but the description disagrees essentially, and it can hardly be the same.	115
1040	Nova.	11 49 40.8	41 49 9	F; m E; v g l b M; 100" l, 25" br	235
1041	II. 733	11 49 42.3	45 6 17	B; m E; v s v m b M to a * = 10.11 m; pos of extension = 62° 3 by measure.	248
		49.0	8 ±	A * 11 m with a strong nebulous ray (25° n f to s p by estim from diagram); v s v m b M.	140
1042	III. 3	11 49 51.5	72 52 48	Not v F; R; p g b M; 35"	421
		53.0	52 14	p B; p s b M; 25"	422
1043	III. 369	11 50 7 ±	61 34 52	p B; L; g b M. AR by working list; past merid	68
		...	34 46	v F; L; 60"; past merid	66
		...	36 ±	Spec; no descrip. P D very rough	114
1044	Nova.	11 50 10.3	74 50 45	e F; has a * 9 m 5' s f	420
1045	II. 275	11 50 11.0	58 37 56	Not v F; bicentral or elongated; v g b M, to a central axis pos = 199° 5, or pos of the two centres = 19° 5; 14" l, 25" br	342
1046	III. 617	11 50 24.6	51 14 38	e F; p L; R	78
1047	I. 223	11 50 33.1	38 5 43	No description	67
1048	I. 121	11 51 39.8	90 9 32	B; R; 60"; a * 10 m, 50° n p	14
		40.3	8 40	B; R; p L; p s b M; r; 70"; has 3 or 4 large stars near	141

OF NEBULAE AND CLUSTERS OF STARS.

413

No.	Synonym.	R. 1850-0.	N.P.D. 1850-0.	Description and Remarks.	Sweep.
1049	II. 404	h m s 11 51 46.9	68 50 27	B; pL; R; bM.	63
		46.9	58 16	B; pL; R; bM.	61
		46.7	58 14	cF; L; vlbM; a * 12 m, nf.	246
		45.3	58 11	pB; R; g bM; 40"	423
		49.4	58 20	pB; pL; R; g bM.	409
		50.0	58 50	vF.	244
1050	I. 253	11 52 38.6	27 9 58	pB; R; pslbM; 25"	344
1051	III. 77	11 52 39.6	75 39 9	cF; R; a * 16 m, nf (pos = 80° 0.) dist 2'	242
		41.9	30 15	cF; L; R; v g vlbM; 2' diam; 21° 0 of time preceding a * 5 m.	338
1052	IV. 28.1	11 53 11.8	107 55 10	vL; R; v g bM; the chief neb of a fine double nebula. The other is 2' s. They run together.	149
1053	IV. 28.2	11 53 11.8	107 57 10	The northern of the double neb. It is the smaller and fainter of the two.	149
1054	I. 252	11 53 25.0	26 55 26	pB; R; g bM; 35"; sky not quite clear	344
		25.2	54 51	B; R; at first g, then p s v m b M to a nuclear mass which seems resolvable.	411
1055	Nova.	11 53 28.9	84 42 ±	S; R; precedes a double * about 30', and is 3' south of it. R a rough estimate only from the double *.	142
		38.7	43 15	Not B; S; R; p s b M; 15"	143
1056	III. 491	11 53 46.7	80 15 52	F; vS; R; bM.	145
1057	II. 276	11 54 0.7	82.4 47	F; R; s b M; 25"; a * s f	141
1058	II. 741	11 54 3.6	40 23 6	B; pL; R; p g b M; 40"	329
1059	Nova.	11 54 5.6	71 2 1	vF; S.	61
		7.3	2 21	vF; S; R; p s b M; almost stellar	334
1060	III. 390	11 54 9.4	70 18 42	vF; S; lbM.	63
		...	18 16	vF; pL; R; g bM	334
		...	18 1	cF; S; too late for transit	61
1061	IV. 56	11 54 24.5	44 31 9	E; pos of axis 132° 0; a * 11.12 m, dist 2', pos 257° 0.	256
		24.8	31 7	pF; vL; E; at first v g lb, and then v s v m b M, to a * 14 m. A * is sp.	255
		25.6	30 59	pB; L; E; 3 1/2', 2' br; at first v g lb, but then suddenly comes up to a * in centre = 11 m.	138
		27.5	30 52	E; L; v s b M to a * 11 or 12 m; has a * 10 m 20° sp ..	139
1062	Nova?	11 54 59.8:	68 ±	pB.	423
1063	Nova?	11 55 4.3:	68 ±	pB.	423
1064	Nova?	11 55 8.3:	68 ±	pB. On merid with two more	423
1065	III. 394	11 55 18.8	68 49 29	cF; double neb, both S; R; pos 20° n f.	246
		19.1	49 0	vF; a double neb by diag. pos 20° sp, nearly equal. They run together.	244
		19.4	50 24	vF. The first of 5	59
1066	I. 174	11 55 17.5	57 9 27	B; vL; mE; pos = 97°; g b M; 6' long	342
		19.6	9 31	pB; vL; E in parallel; 3 or 4', 90° br.	74
		20.4	9 45	F; vL; v g b M; mE in parallel; 4', 2' br	357
		25.5	9 22	pB; vL; mE; 10° n p to s f; v g b M; 3', 1' br	131

No.	Synonym.	At 1830.0.	N.P.D. 1830.0.	Description and Remarks.	Sweep.
1066	III. 393	^{h m s} 11 55 24.9	^{° ' "} 68 49 30	p B	400
		25.4	50 24	v F; R; the second of 5	59
1068	III. 391	11 55 25.6	68 41 51	No description	423
		27.1	42 5	Not very F. Another seen	424
		27.4	42 0	p B	400
		29.4	41 37	The third of 5	59
1069	III. 37	11 55 27.6	78 12 11	F; R; b M; 30"	19
		27.9	11 26	v F; L; p g b M; 2'	338
		29.1	11 57	F; R; v g b M; 15"; good obs.	242
		29.1	11 50	p B; R; b M; 40"	120
		30.1	11 58	F; R; b M.	22
1070	III. 392	11 55 29.4	68 43 37	v F; R; the fourth of 5; has another on the same meridian, n.	59
1071	Nova.	11 55 29.4	68 38 30	p B	400
		30.1	39 55.1	Not v F	424
1072	II. 277	11 55 43.7	87 9 17	Not v F; R; g b M	143
		45.3	9 13	F; R; b M; 15"	143
		45.5	9 54	p B; L; R; p s b M; 60"	238
		45.6	9 15	p F; irr R; p s b M; 40"	141
1073	III. 394	11 55 48.3	68 44 0	c F	400
1074	Nova.	11 55 48.7	86 59 7	F; S; R	145
1075	III. 396	11 55 52.4	68 53 30	The last of 5	59
1076	III. 258	11 55 57.3	87 16 3	F; R; b M; 20"; the s f of two	143
1077	Nova.	11 56 5.9	91 26 7	Not v F; L; R; 40"; has a * 10 m, 60" n	146
1078	III. 355	11 56 8.9	62 3 16	c F	66
		9.3	3 14	F; R; g b M	68
		10.0	2 51	v F	64
		10.6	4 22	F; p L; R; b M.	115
1079	II. 382	11 57 13.1	68 28 1	c F	423
		...	28 ±	No description	409
1080	III. 400	11 57 19.6	52 10 38	c F; v S; like a *; is n f a * 11 m, 2' dist.	72
		22.1	11 27	v F; R; v s b M; has * 10 m, 45° sp, 90" dist	331
1081	I. 207	11 57 19.7	41 34 33	B; v L; m E, in pos 32° 0; seen through much fog	330
1082	III. 383	11 57 21.6	68 25 31	No description	423
		21.9	26 10	v F; R; b M	244
		...	26 30	No description	409
1083	III. 326	11 57 26.9	63 29 28	c F; R; v g b M.	407
		28.9	29 58	v F; R	58
1084	III. 717	11 57 27.6	39 28 46	p B; v L; m E in pos 166° 5; 3' 1, 1' br; v g v l b M. This cannot be either I. 206 nor I. 207, as neither of these agrees in its angles of position.	329
		...	29 37.1	Nearly as B and L as I. 207; and the position is from n p to s f. Both therefore exist. Taken past merid. P.D. therefore precarious.	330

No.	Synonym.	R 1830-0.	N.P.D. 1830-0.	Description and Remarks.	Sweep.
1085 I. 225		$11^{\circ} 57' 43.3''$	$36^{\circ} 20' 33''$	B; R; p s b M; has a * 12 m 35" s p very near the edge	328
1086 II. 370		$11^{\circ} 57' 54.3''$	$60^{\circ} 52' 26''$	p B; R; b M	64
		55.8	52 20	p B; 60"; moon and haze	67
		56.3	51 31	p B; R; s b M; 40". Uncertain obs; between clouds	65
		56.8	52 56	v F; 1 E	66
		57.4	52 52	B; R; g m b M; 30"	417
		59.6	53 22	p B; not v S; E; 1 b M	115
1087 Nova.		$11^{\circ} 58' 7.9''$	$21^{\circ} 53' 41''$	B; R; g b M; 20"; first class	412
1088 I. 195		$11^{\circ} 58' 18.7''$	$45^{\circ} 59' 52''$	v B; v m E, in pos 151° 0; v s v m b M; 40" l, 10" br	248
		23.0	58 57	B; S; m E; s b M; a double * points to its nucleus	150
1089 Nova.		$11^{\circ} 58' 28.5''$	$55^{\circ} 3' 45''$	c F	337
1090 Nova.		$11^{\circ} 58' 29.6''$	$74^{\circ} 39' 12''$	A suspected neb. Extremely faint	24
1091 III. 708		$11^{\circ} 58' 55.5 \pm$	$46^{\circ} 2' 15 \pm$	In a straight line prolonged from I. 195 through a double star near it.	248
1092 V. 4		$11^{\circ} 59' 25.4''$	$86^{\circ} 10' 36''$	v F; not v L; E or bicentral; b M	143
		29.1	10 40	F; v L; E; g b M; 3' l, 2' br; has * 16 m in nucl, and 1 or 2 more suspected.	141
1093 Nova.		$11^{\circ} 59' 27.3''$	$56^{\circ} 3' 6''$	c F; v S; R; m b M	74
1094 I. 33		$11^{\circ} 59' 29.1''$	$78^{\circ} 40' 18''$	v B; m E; 30° n p to s f; b M	120
		29.2	41 15	p B; p m E; 30° n p to s f; 2' l	191
		...	40 12.2	E in a n p direction towards a *	3
1095 III. 68		$11^{\circ} 59' 56.2''$	$72^{\circ} 55' 10''$	v F; S; R; p s b M	419
1096 I. 279		$11^{\circ} 59' 57.9''$	$12^{\circ} 15' 12''$	c F; R; v g l b M	413
		60.0	15 7	F; R; 1 E; g b M; 20"	170
1097 II. 548		$12^{\circ} 0' 10.4''$	$98^{\circ} 5' 38''$	p F; E; g b M; very ill defined	137
		10.8	5 4	F; v g b M; E in parallel; 30" l, 20" br	136
1098 III. 356		$12^{\circ} 0' 15.3''$	$59^{\circ} 46' 11''$	v F; S; R; the n p of 3 in a line	66
		16.8	46 1	F; S; R	68
1099 II. 371		$12^{\circ} 0' 18.8''$	$59^{\circ} 48' 51''$	F; S; R; the second of 3 in a line	68
		21.5	48 7	F; the n p of 2 (the third not seen)	342
		22.8	49 51	v F; S; the second of 3 in a line	66
1100 I. 278		$12^{\circ} 0' 28.6''$	$14^{\circ} 8' 57''$	F; R; g b M. Strong twilight	349
		30.0	9 42	p B; R; g b M	413
1101 III. 357		$12^{\circ} 0' 28.8''$	$59^{\circ} 52' 41''$	p B; 1 E	68
		30.3	53 31	F; p L; the third and s f of 3 in a line	66
		30.5	50 5	B; the s f of 2; place by rough estimation	342
1102 III. 793		$12^{\circ} 0' 58.7''$	$30^{\circ} 11' 59''$	F; p L; 1 E; g b M; 40"	345
1103 III. 814		$12^{\circ} 1' 0.1''$	$35^{\circ} 56' 6''$	v F; irreg fig; v g l b M; twilight	547
1104 IV. 54		$12^{\circ} 1' 12.2''$	$46^{\circ} 34' 2''$	R; s b M to nucleus	150
1105 I. 169		$12^{\circ} 1' 22.9''$	$49^{\circ} 10' 36''$	p B; v L; dilute; v g l b M	73

No.	Synonym.	$\mathcal{R}$ 1830-0.	N.P.D. 1830-0.	Description and Remarks.	Sweep.
1106 I. 19		^{h m s} 12 1 21.4	^{° ' "} 70 29 41	B; R; 80"; consists of distinct stars. A globular cluster. PD mistaken 1° in obs; corrected.	61
		24.4	30 47	vB; resolved	63
		24.9	30 21	vB; R; 40". I see the stars of which it consists	334
1107 II. 747		12 1 21.8	42 36 9	F; v m E in pos 109° 0 by measure; v g b M 4' long, 30 or 40" br	253
		23.5	36 27	pB; g b M; a long narrow ray; 3' 1, 30" broad	140
1108 II. 321		12 1 34.0	59 8 4	v F; v L; 5 or 6' diam. The minute in $\mathcal{R}$ doubtful; perhaps 0"	67
1109 II. 802		12 1 51.7	30 46 12	No description	323
1110 I. 73		12 1 55.0	58 39 4	B; R; p g m b M; 25"; a * 8 m 5' p	342
1111 I. 163		12 1 55.2	49 38 41	v s m b M to a * 10 m; the sp of 2, 6' distant	73
		55.7:	40 18:	vB; S; R; p g b M; 30"	335
1112 II. 83		12 1 56.3	73 1 26	vB; R; p g m b M; 40"	418
		56.9	1 23	No description	422
		57.1	1 31	pB; S; R; g b M; 20"	419
1113 II. 642		12 2 12.7:	49 36 51:	v F; l E; v g b M	335
		17.3:	34.37:	The n f of 2. Place by estimation from the other, and of course very rough.	73
1114 I. 208		12 2 29.8	38 33 53	B; v m E; v g l b M; 4' long	328
1115 H. 405		12 2 32.4	68 52 57	v F; has a * n f	59
1116 III. 941		12 2 36.3	12 55 47	e F; R; makes equilateral triangle with 2 stars	413
1117 H. 353		12 3 15.2	64 55 48	B; L; E; b M; 60"	58
1118 Nova.		12 3 33.1	52 33 2	F; p L; R; v g b M; a D * s p dist 10'. The MS obs makes the PD decidedly 33'; but <i>should</i> it be a mistake for 52', this nebula would be identical with III. 399.	331
1119 II. 105		12 3 36.7	75 51 4	B; R; p s b M; irreg fig; r	242
1120 II. 372		12 3 40.8	59 53 1	pB. The first of 4 in a trapezium	65
		45.3	53 31	The first of a trapezium	66
1121 III. 358		12 3 43.3	59 50 ±	The second of a trapezium	65
		48 ±	50 ±	The second of trapezium. Place estim	66
1122 III. 359		12 3 44.3	59 55 ±	The third of trapezium. Place by estim	65
		50 ±	56 ±	The third of trapezium; place by estim	66
1123 II. 742		12 3 46.1	32 52 57	p F; S; E; g b M; 15" 1, 12" br.	345
1124 III. 360		12 3 53.3	59 54 ±	The last and largest (by diag) of trapezium	65
		58 ±	53 ±	The last of trapez. Rough place	66
1125 Nova.		12 4 5.4	78 11 40	v F; v L; E; a * 7 m folls 7' ± dist	191
		...	12 32	v F; E n f to s p; 40"	3
1126 I. 9		12 4 10.8	87 45 27	pB; S; m E; a ray with a nucleus pos 45° n p to s f.	145
1127 II. 133		12 4 13.1	82 1 9	B; R; p s b M; 40"	117
		21.6	0 43	No description	252
		22.4	1 15	pB; E; v g b M; 20"	250
1128 III. 697		12 4 40.4	45 22 47	v F; L; v m E; 2' 1, 30" br	150
		44.0	22 22	v F; v m E, pos 170° 0 ±; 90" 1, 30" br.	248

No.	Synonym.	R 1850-0.	N.P.D. 1850-0.	Description and Remarks.	Sweep.
1129 II. 373		$h \begin{smallmatrix} m \\ 4 \end{smallmatrix} 42.6$	$\hat{c} \begin{smallmatrix} 32 \\ 39 \end{smallmatrix}$	vF; R	67
		43.4	33 7	pF; pL; R; g b M	343
		45.2	33 2	vF; vL; R; g b M; $2\frac{1}{2}$ diam	417
		49.3:	$34 \pm$	Place coarsely estim from a neb following	68
1130 Nova.		12 5 5.8	81 51 7	No description	231
		7.8	51 13	F; R; near a small *	252
		8.2	51 7	vF; R; b M	253
		8.7	50 41	No description	254
1131 II. 166		12 5 6.9	75 38 10	pB; L; 1E; v g l b M; 2' diam	338
1132 M. 98		12 5 8.0	74 8 12	B; v m E, a ray, pos 70° s f to n p; m b M almost to nucleus; 10' long; 6 comæ entered, bisected by the same horizontal wire.	24
		8.1	9 0	pB; v s b M to nucl; a long ray pos = $153^\circ 0$ by meas; 8'...10', 30 hr.	419
		8.4	9 34	B; L; m E pos $152^\circ 1$ by meas; v a v m b M 8'...10' long. A fine object.	422
		...	9 16	B; L; v m E; p s b M; precedes 6 comæ about 30' of space ..	421
1133 II. 409		12 5 8.3	52 25 27	vF; pL; R; v g l b M; $40''$	331
1134 II. 163		12 5 12.8	75 53 4	vF; pL; E; v g b M	242
1135 II. 867		12 5 36.5	34 30 45	F; v s m b M to a * 12 m; $20''$	347
1136 II. 374		12 5 52.2	60 37 32	B; v a v m b M to a *	417
		52.8	38 37	pB; S; p s b M.....	343
		54.0:	37 54	F; S; R; b M	68
		61.0	38 54	B; S; s b M	67
1137 II. 134		12 5 56.5	83 14 53	pB; E; v g b M; $20''$; like II. 133.....	250
1138 II. 164		12 5 58.3	76 53 46	eF; R; b M	19
		63.4	52 38	pB; R; p s l b M; $40''$	340
1139 II. 793		12 5 59.8	33 2 17	pF; S; 1E; g b M; like II. 792.....	345
1140 I. 175		12 6 29.3	55 51 26	B; R; s m b M	74
		31.5	51 24	vB; R; p s m b M.....	131
1141 III. 397		12 6 36.5	68 24 10	eF; L; v g l b M; $45''$	400
		...	$23 \pm$	eF	424
1142 II. 167		12 6 47.7	75 9 24	vF; pL; R; g b M	243
1143 III. 850		12 6 55.0	23 4 28	Not vF; pL; R; v g b M; $30''$	412
1144 II. 168		12 6 57.4:	75 8 40	B; L; E; v g b M; $90''$ l, $75''$ br.....	419
		61.9	9 20	B; L; 1E in parallel; at first gradually and then s b M; r; 3' diam	358
1145 II. 354		12 7 0.2	65 3 58	vF; vS; R	407
1146 I. 95		12 7 5.1	52 44 2	B; L; g b M; $50''$; has a double nucl very indistinct. The diagram makes it a double neb, the two running together. See fig 71.	331
1147 II. 125		12 7 11.3	82 39 6	B; pL; irreg fig; g b M	117
		12.8	39 7	pB; E; p g b M; $25''$ l, $20''$ br.....	255
		14.3	39 12	vB; m E; v s b M to a * 11 m	250

No.	Synonym.	R 1850-0.	N.P.D. 1850-0.	Description and Remarks.	Swcp.
1148 I. 109		12 7 14.7 15.4 ... 53 30.	75 54 4 54 29 55 ±	B; E; r v B; v L; a nucleus with two branches extended in pos 75° n f to s p. (See fig 59.) A very remarkable long ray extended 70° n f to s p, 7 1/2' long, s m b M. It has a * n f the nucleus. Rough place. B; m E; p s b M. (N.B. No neb at 76° 2'. Seen also in Sw 2, but the place and description too rough to be of use.)	192 242 3 340
1149 II. 748		12 7 17.1 18.8 19.5 19.9 ...	41 57 16 59 34 58 34 60 ± 59 6.	F; m E; s of 2 bright stars p B; v m E in pos = 225° 0 by meas; 5' l, 1' br; 2 st near and a L * p. F; m E; 2' l; has 2 st, 9 and 11 m, n f F; L; E; has a * 1° 0 following and another near g b M; E; 70° n f to s p; is s of a coarse double *	329 255 138 139 140
1150 Nova.		12 7 41.2	22 49 23	p B; S; R; p s b M; 15"	412
1151 I. 209		12 7 42.7	41 10 33	p B; p m E in pos = 314° 4; p s b M. (Foggy.)	330
1152 II. 137		12 7 45.3	82 21 31	p B; R; R estimated from III. 480, which it precedes on same parallel.	254
1153 II. 136		12 7 46.4 53.3	81 35 44 35 33	p B; p L; l E; g b M p B; R. Hazy, clouding over	251 252
1154 Nova.		12 7 52.6	101 21 49	F; e S; R; 5"; has a * 8 m, 80° s f, dist 60"	129
1155 Nova.		12 7 58.7	42 2 32	F; S; l E; the second of 2 in field	130
1156 II. 518		12 7 59.8 61.3	55 32 36 31 37	p B; R; b M p F; R; p s b M; the s p of 2	74 131
1157 Nova.		12 8 1.5	52 43 41	v F; L; R; g b M; 90"	72
1158 II. 519		12 8 4.5 7.3	55 30 1 29 14	The n f of 2 F; R; p s b M; 65° n f the neb II. 518	74 131
1159 II. 17		12 8 24.2 29.1	61 51 24 51 57	p B; l E; g b M v B; p m E; v s b M; among small st	251 253
1160 Nova.		12 8 27.5	85 22 30	p B; L; R; g b M; 60"	141
1161 II. 496		12 8 27.8	81 25 59	p B; R; v s b M to a S nucleus; 20"	254
1162 II. 11		12 8 31.5 53.0	73 45 2 43 44	e F; but haze and strong twilight B; L; l E; v g b M	27 422
1163 V. 17		12 8 37.3	19 38 0	Immensely L; v F; m E; v g b M; it fills more than a field, but is hardly distinguishable. Hazy.	377
1164 III. 851		12 8 37.5	25 38 56	v F; not v S; R; v g l b M; 15"....20"	411
1165 III. 480		12 8 45.5 45.7	82 23 11 22 30	v F v F; v g b M; a * 7 m to south	254 256
1166 III. 725		12 8 48.9 51.9	43 26 9 25 29	F; v L; R; v g b M; diam in R = 15° 0 of time. Sky quite clear. ☐ illuminating wires.	256
1167 V. 41		12 8 56.7 57.8	51 15 12 14 5	F; L; R; v g b M; r; has a * 10 m, 2' f F; v m E; a v long narrow ray pos = 43° 2 by meas, at least 9 or 10' l, extends across the field. p B; v m E; a long ray, 50° n f to s p ± by estim; 12' l, 90" br	140 331 73

No.	Synonym.	R. 1830-0.	N.P.D. 1830-0.	Description and Remarks.	Swcep.
1168 I. 74		12 8 59.6	59 26 56	B; pL; r	66
		62.1	26 41	vB; R; sbM; 60"	65
		62.9	27 5	vB; pL; R; psbM	342
1169 II. 742		12 9 17.8	41 38 46	eF; hazy	329
		20.0	39 29	vF; p m E; psbM	255
1170 I. 264.		12 9 31.3	18 15 17	pF; S; R; pgbM; 15"	377
1171 I. 89		12 9 31.7	60 52 52	vB; vsmbM; has * 6.7 m 1 1/2 min (of time) following	417
		33.2	52 57	vB; S; mE; vsmbM; nucleus elliptic	343
		...	52 18:	vB; R; bM	68
1172 III. 702		12 10 0±	59 13 ±	vF; R; 20"	342
1173 M. 99		12 10 9.9	74 38 36	Not vB; R; vgbM; 5' diam	421
		10.0	38 34	pB; vL; R; gbm; r; 5' diam	422
		10.8:	36 55:	B; R; gbm; r; 5' diam.	419
		...	38 24	B; L; R; gbm. Seen through cloud	418
1174 II. 846		12 10 29.1	23 9 23	pB; v m E in pos = 218° 2; 90' 1	412
1175 V. 43		12 10 30.8	41 45 18:	vB; vL; vsmbM to an oval nucl; 8 or 9' long, 4 or 5' broad. (See fig 55.)	330
		32.7	46 19:	vB; vL; vsbM to an oval nucleus which is not in the middle of its length; 6' 1, 3' br.	253
		32.7	44 6:	vB; vL; sbM to a *; 6' 1, 4' br	329
		...	46 56:	vB; L; v m E	256
1176 II. 139		12 10 32.7	83 13 51	vB; pL; R; psmbM; 40"	250
1177 II. 138		12 10 40.7	82 57 33	pB; through thick haze	252
		41.3	57 10	B; E; psbM	253
1178 Nova.		12 10 41.1	83 43 ±	Precedes four more, nearly in parallel	117
1179 II. 110		12 10 50.6	74 10 51	B; S; R; like a * 11 m with a burr	421
1180 II. 140		12 10 54.4	83 12 30	pF; R; gbm; 30"	250
1181 II. 166		12 11 5.2	76 16 15	pB; R; sbM	191
		7.7	15 44	pB; R; vsmbM, almost to a *	243
1182 III. 299		12 11 14.3	58 42 49	eF; vS; R; 10"	342
1183 Nova.		12 11 16.3	83 43 34	B; L; E; gbm.	238
1184 II. 376		12 11 18.2	61 26 17	F; R; gbm; 20"	343
		...	25 42	F; lE; near a * 15 m	417
1185 I. 75		12 11 16.6	59 26 15	vB; vL; E in parallel; 2' 1, 1 1/2' br.	65
1186 I. 90		12 11 32.6	59 46 21	vB; R; smbm; r	66
		32.7	46 29	vB; pL; R; gbm; 90"	67
1187 II. 573		12 11 40.6	83 40 34	vB; vL; R; pgbM; 3'; 3 more seen	238
1188 II. 377		12 11 47.7	59 44 29	B; R; S; bM; 30"	67
		48.1	44 11	B; R; sbM	66
1189 Nova.		12 11 53±	83 44 ±	vF; S.	117
1190 Nova.		12 12 3.1	83 42 34	vB; R; the central neb of 4 in a trefoil	117

No.	Synonym.	R 18000.	N.P.D. 18000.	Description and Remarks.	Sweep.
1191 III. 726		h m s 12 12 10.0	a s 42 45 34	pF; R; v g b M; 60"	138
		11.3	45 56	vF; L; v g b M; irreg R; r	140
		13.4	47 22	eF; pL; R	139
1192 I. 275		12 12 14.5	13 41 2	pF; S; E. The reductions of the R in this sweep are precarious.	348
		40.0	40 43	F; S; s b M; 10"; a * 15 or 16 m precedes	170
		41.0	41 32	pB; stellar; v s m b M. The first of a trapezium of stars	413
		48.6	41 12	pF; R; g b M; 20"; followed and almost surrounded by 3 stars 10 m, one of which is double; has also a v S * s p dist 30".	349
1193 II. 805		12 12 20.2	30 57 37	pB; L; R; g b M; 60"	345
1194 Nova.		12 12 28.6	83 40 34	vB; E; b M; 60"	117
		28.8	39 19	pF; R	251
1195 V. 5		12 12 32.2	70 39 36	F; vL; E; b M; 5' 1, 1 1/2' br	61
		33.5	40 57	L; E; l b M	63
1196 Nova.		12 12 34.2	84 27 32	F; R; v g l b M; has a * 70" n p; 1' dist. Taken for I. 139, but this neb does not exist, or is identical with M 61.	143
		...	28 35	F; S near a B *; precedes M. 61 about half a field	141
1197 II. 61		12 12 35.8	77 33 19	pB; pL; E n p to s f; has another f in same parallel	19
		34.2	33 11	F; L; b M; E 45° n p to s f; 2' 1, 1' br	22
		32.2	32 59	F; v m E; like a double neb composed of 2 R nebulae	242
		39.9	32 17	F; m E; L; v g b M; 3' long	338
1198 II. 111		12 12 53.2	74 27 16	F; L; E; v g b M; a star follows; the p of 2	421
		53.9	26 29	The p of 2; by diagram E in merid, nearly parallel to the other	422
1199 II. 112		12 13 0.2	74 27 16	L; v m E nearly in merid; the f of 2	421
		3.4	26 29	The f of 2; both m E and nearly parallel	422
1200 II. 62		12 13 0.7	77 33 0	F; pL; E. (Seen also in Sw 19.)	242
		1.5	33 2	vF; L; l E; v g b M; 3'	338
1201 II. 572		12 13 1.2	83 40 23	F; l E; v g b M.	250
1202 M. 61 = I. 139		12 13 12.8	84 34 55	B; vL; v s b M to a * 11 m, with a v F atmosphere about it. This nebula is probably identical with I. 139. (See fig 69.)	141
		13.7	34 56	B nucleus in a v F atmosph 2' diam, gradually fading away ..	142
		...	...	Viewed; v faintly bicentral. The two nuclei 90" dist pos 45 ... 50° n f.	143
1203 Nova.		12 13 25.2	76 19 35	vF; R	191
1204 I. 76		12 13 53.0	59 9 46	vB; E; s b M; points to * 60° n p	63
1205 II. 378		12 13 54 ±	59 50 ±	vB. The n p of 2	68
		...	50 34	Past merid. No R procured	67
1206 Nova.		12 13 54.0	59 51 8	F; the s f of two	68
1207 II. 63		12 13 58.0	77 17 12	eF; E 45° n p; r in middle	3
		59.4	15 39	vF; L; R; 60"	243
1208 Nova.		12 14 5.7	80 51 20	eF; a * 8 m 5' dist, on merid, to n	120
1209 ... 628		12 14 2 ±	73 30 57	pB; pL; E; g b M; R by working list	419

No.	S. number.	1850-9.	N.P.D. 1850-9.	Description and Remarks.	Sweep.
1210 I. 276	12 14 10.5	13 43 48	pB; S; s b M; 15"	170	
	16.9	44 27	pB; pL; b M. Follows I. 275	413	
	15.7	43 42	F; R; b M; 18"; the f of two in field.	349	
1211 M. 190	12 14 17.9	73 14 34	pB; R; p s m b M. Not a very remarkable nebula. II. 84 was not seen.	422	
	19.3	13 39	Barely visible through cloud	416	
	20.8	13 26	vL; s m b M; a nucleus with dilute borders	25	
	...	13 56	vF; vL; R; v s b M to a p B nucleus.	421	
1212 H. 85	12 14 30.0	72 20 5	pB; R; p s b M.	419	
1213 H. 141	12 14 30.2	82 58 51	vF; S; R; b M; 10"; the first of 3 in a triangle	254	
1214 Nova.	12 14 35.8	101 35 29	F; vS; R; b M to nucleus	129	
1215 H. 142	12 14 40.7	83 1 1	F; pS; R; b M; 15"; the second of 3 in a triangle	254	
1216 H. 847	12 14 41.3	23 12 43	F; R; v g b M; 20"	412	
1217 H. 806	12 14 41.6	30 36 52	pF; S; b M	323	
	41.9	37 12	pB; S; E; g b M; good obs of place	345	
1218 Nova.	12 14 44.3	81 35 7	pF; R; S; close to a *	253	
1219 H. 405	12 14 47.2	69 38 22	vF	63	
	52.8	37 56	F; pL; R; b M	61	
1220 III. 942	12 14 52.1	12 53 7	eF; hardly discernible	413	
1221 H. 86	12 14 52.5	72 21 5	vB; mE; v s b M; 35" long	419	
1222 H. 143	12 14 54.2	82 58 31	B; R; pL; p s b M; 30"; the third in a triangle	254	
	54.8	57 44	B; R; g b M; neat and bright, but only one seen. (This must therefore be the brightest.)	251	
	53.3	58 14	pB; R; has a * 10 m 1' s	117	
1223 III. 94	12 14 58.3	82 6 59	pB; E; or has a F neb on the s f side	250	
1224 III. 31	12 15 1.0	71 31 1	F; not vS; R; v g l b M; 25"	334	
1225 I. 210	12 15 4.5	42 3 23	pB; S; p m E; p s b M; 40"	330	
	5.8	5 34	B; S; E; v s b M; 50" 1, 20" br	255	
	6.5	3 59	vB; S; mE; v s m b M	138	
	6.5	4 13	vB; a * with a short sharp ray; by diag pos 10° s f to np. (See fig 57.)	140	
	6.6	3 52	vB; S; mE in parallel; v s m b M to nucleus.	139	
	...	3 46	B; S; R; p s b M; hazy	329	
1226 H. 625	12 15 4.6	92 30 4	F; irreg R; a small * p. (AR reductions in this sweep considerably uncertain.)	21	
	10.8	30 32	F; pL; E; v l b M. (AR to be preferred.)	146	
1227 H. 64	12 15 25.4	77 50 13	vF; S; lE; (nisi AR = 12° 16' 25" 4)	338	
	...	49 30	No description or observed AR	340	
1228 I. 123	12 15 37.5	64 7 32	B; visible in strong twilight; has a * 6.9 m 20° s f dist 3'; (nisi AR = 12° 16' 25" 4)	153	
1229 III. 648	12 15 40.1	57 32 25	F; p m E, nearly in parallel; v l b M; 25"	342	
1230 H. 799	12 15 42.1	30 40 32	F; lE; the p of 2	345	
1231 I. 65	12 15 43.4	107 50 4	vB; L; R; v s m b M to nucl = * 11 m 90" diam. r with power 320, and is no doubt a globular cluster; fades away to nothing.	149	

No.	Synonym.	R 1830-0.	N.P.D. 1830-0.	Description and Remarks.	Sweep.
1232	I. 30	$\begin{smallmatrix} h & m & s \\ 12 & 15 & 49.0 \\ & & 50.1 \end{smallmatrix}$	$\begin{smallmatrix} \delta & \alpha & \theta \\ 61 & 44 & 14 \\ & & 44 & 33 \end{smallmatrix}$	v B; R; at first g b, then s m b M; 50'' Just visible through cloud No description	251 252 253
1233	III. 800	12 15 50.1	30 41 32	c F; the last of 2. (The other was III. 799; III. 801 not seen.)	345
1234	I. 166	12 16 10.3 11:5	49 40 39 41 31:	p B; R; s m b M almost to a * v B; R; p g m b M; 30''; r	73 335
1235	I. 22	12 16 14± 14:0 15:3 ...	77 21 32 21 9 22 5 19 ±	g b M; 20''. Rough place..... B; R; g b M; 30''..... B; R v F; R; v g b M; 20''; very rough place.....	3 22 191 2
1236	II. 144	12 16 14.2 14:9	81 36 29 37 17	p F; R; b M; 40''..... p B; S; E	117 253
1237	M. 84	12 16 26.2	76 10 9	v B; R; p s b M; 60''; r	192
1238	II. 379	12 16 29.0 29:5	60 30 13 29 55	F; R; has a S * 35° n f, 90'' dist..... F; R; b M	66 68
1239	I. 12	12 16 36.1	74 17 44	B; S; v s m b M.....	422
1240	Nova.	12 16 41.8	73 25 31	p L; R; s m b M to nucleus	25
1241	Nova.	12 16 45.5	79 3 1	v F; p L; R; l b M	19
1242	M. 85	12 16 47.6 49:5	70 51 56 52 26	v B; R; b M; 2' diam; has a * 80° n p dist 30'' from edge .. v B; v s b M; 60''	61 334
1243	III. 879	12 16 54.1 56:0	34 32 50 33 15	c F; hardly sure that I see it. Sky very dull..... p B; S; R; g b M; 12...15''	346 347
1244	Nova.	12 17 9.8	76 24 34	v F; E; the p of 2, dist about 30' in R.A.....	192
1245	II. 749	12 17 11.5 11:9 14:8	43 22 29 22 1 22 22	F; v L; E; v g l b M; 2' l, 1½' br..... p B; p L; irreg R; g b M..... p F; p L; m E	255 140 139
1246	III. 361	12 17 18.2	61 29 50	F; irreg fig; has a line of B at preceding.....	68
1247	I. 277	12 17 18.4 18:4	13 32 17 31 52	p B; l E; p s m b M; 25''..... B; l E; p s m b M.....	348 349
1248	III. 852	12 17 18.9 20:6	24 7 18 7 11	v F; S; R; s b M. Has a triple * sp..... p B; S; b M; 12''. Near a p B triple *.....	412 411
1249	III. 729	12 17 19.9	43 15 21	F; S; R; v g b M. R from II. 749, which it follows 10'....	140
1250	II. 167 } II. 168 }	12 17 20±	76 19 2	These and several more seen	3
1251	II. 55	12 17 20.6 21:5	70 50 41 61 6	p B; l E; b M. In field with M. 85	61
				p B; l E. Follows M. 85.....	334
1252	V. 29.1 V. 29.2	12 17 22.2 12 17 29.7 33:0	55 30 36 55 32 36 32 22	Two nebulae running into one another; both c F; v L; the f rather the brighter. Place that of the preceding. (See fig 68.) The following nebula of V. 29	74 74
				v L; extremely ill defined, may perhaps be 10' l, 3' br; p s l b M to an irregular centre. On closer examination bicentral; pos of the nuclei 30° n p; dist 2'.	131

No.	Synonym.	R 1830-0.	N.P.D. 1830-0.	Description and Remarks.	Sweep.
1253	Nova.	$\begin{smallmatrix} h & m & s \\ 12 & 17 & 28.9 \\ & & 35.0:: \end{smallmatrix}$	$\begin{smallmatrix} ^{\circ} & ' & '' \\ 76 & 7 & 6 \\ & & 7 \ 14 \end{smallmatrix}$	v B; R; g b M to nearly a star	22
1254	II. 88	12 17 32.3	72 53 11	v B; L; p g m b M; r. (R precarious.)	243
1255	Nova.	12 17 32.8::	76 25 $\pm$	p B; R; v s b M; 30"	421
1256	Nova.	12 17 43.0	80 2 45	The following of 2	192
1257	II. 34	12 17 53.9	85 6 0	e F; v L; R; g b M; 2 $\frac{1}{2}$ ' diam	120
		54.8	5 49	F; p L; g b M	141
				F; L; R; v g b M	238
1258	I. 77	12 17 59.5	57 50 3	v B; L; p m E, first g b and then v s v m b M to a nucleus = * 11 m; 3' l, 90" br.	342
		...	50 38	B; L; l E; s m b M; 4' l, 3' br.	74
1259	II. 169	12 18 1.1::	76 29 32	e F; g b M; has 2 st, n and np	3
1260	Nova.	12 18 5.6	81 8 24	v F; L; R; 60"; has * 7 m, 5' sp	117
1261	III. 492	12 18 12.4	89 56 37	F; S; R; near a *	146
		...	56 42	F; R; b M	145
1262	II. 113	12 18 18.2	74 0 52	B; E, np to sf; s b M	24
1263	II. 23	12 18 18.3	86 33 33	v F; l E; 30". This may possibly be identical with III. 17.	143
		19.2	33 56	p B; r	142
1264	II. 89	12 18 26.5	73 35 46	p B; R; p g b M	422
		30.8	34 36	A star np	25
1265	III. 492	12 18 26.9	94.53 1	v F; S; R; p s b M	147
		27.5	53 21	Not v F; R	234
1266	II. 145	12 18 29.9	83 10 43	v F; v S; E	250
1267	II. 170	12 18 31.2:	76 20 22	p B; S; R; b M	19
		36.1	19 59	No description	242
1268	II. 171	12 18 36.9:	76 45 45	v F; oval; g b M; 50"	340
1269	Nova.	12 18 43.4	97 14 15	p L; v F; very ill defined	137
1270	II. 146	12 18 46.3	82 48 37	v F; L; R; g b M; 90"	253
		49.1	47 24	v F; v L; R; v g b M; 50"	251
1271	Nova, or II. 65 }	12 18 48.3	77 57 15	B; L; p m E; p s b M; has * 10 m n f, l' distance	191
		50.3	58 26	v B; L; E; has * n f; 2' dist, pos = 29 $^{\circ}$.4 by micrometer.	245
1272	II. 172	12 18 50.9:	76 43 55	v F; g b M; 40"	340
1273	Nova.	12 18 53.4	97 20 50	Not v F; p L; l E; very ill defined	137
1274	M. 86	12 18 57.9::	75 60 1	The preceding of 2	22
		62.4	58 19	No description	338
		62.6	59 24	v B; R; 30"	242
1275	I. 28	12 19 2.9:	76 3 46	B; R. The f of 2	22
		6.1	3 34	p B; L; l E; 60"	242
		7.4	2 34	p B; v L; the f of 2	338
1276	II. 173	12 19 3.9	76 45 50	B; R; b M; 50"; r	340
1277	Nova.	12 19 7.2	88 55 42	F; v m E, pos 15 $^{\circ}$ n f to s p; a long ray; it is s p a * 10 m. The place is that of the star.	145

No.	Synonym.	N.P.D. 1830-0.	M 1830-0.	Description and Remarks.	Sweep.
1278	II. 848	h m s 12 19 24.1	24 15 21	p F; R; v g b M; 25"	411
1279	II. 156	12 19 26.6	79 14 55	v B; R; s m b M; 30"	120
1280	I. 91	12 19 43.8	60 26 41	B; L; 1 E	63
		45.4	26 42	p B	417
		45.7	26 42	B; L; m E exactly in parallel; s m b M	343
			26 11	No description.	415
1281	I. 213	12 19 47.2	44 58 42	B; L; g b M; E in pos 75° n f to s p a fine cluster; well resolved; I see several of the stars; 3' l, 2' br.	150
		49.4	58 8	v B; resolved; has as it were a forked tail	151
		49.6	67 52	v F; v L; v m E; it is either a double neb, or the n f end is bifid. If double the companion is F; R; b M; nearly north dist 1½' or 2'. A fine object.	248
		60.6	57 57	v B; v L; m E. The centre is fairly resolved; 3' l, 2' br. Borders hazy.	139
1282	II. 56 = II. 90	12 19 53.2	71 58 44	B; p L; R; p s b M; 2'	422
		53.7	59 2	p L; R; b M nearly to nucleus	27
		53.9	58 55	v B; L; R; p s b M; 60"	419
		54.4	58 2	v B; 1 E; p g b M; 100". (N.B. II. 90 and II. 56 appear to be identical.) Carefully examined. No other found near the place.	334
		54.5	58 6	B; L; R; g v m b M to a stellar nucleus	25
		54.6	58 57	p B; p L; R; b M	63
			58 19	F; p L; has a s 9 m s p; 5' dist	418
			57 38	p B; L; b M; 60"; r	61
1283	II. 26	12 20 7.3	82 32 51	e F	254
1284	II. 180	12 20 7.9	91 0 12	F; R; g b M; 20"; a stellar point 18 m in the centre; 2 B at precede, distant.	146
1285	II. 355	12 20 11.0	66 14 30	p B; p m E; g b M; two B stars n f	424
		11.4	14 25	v F; p L; 1 E	409
1286	II. 35	12 20 18.1	85 29 19	B; R; v s b M; 20"	288
		18.2	29 3	B; R; p s b M; 30"	143
		18.5	29 14	v B; S; R; s m b M to nucl = s 10 m	142
1287	II. 121	12 20 20.4	75 49 8	p B; R; p s b M; the p of 2	338
1288	I. 161	12 20 22.1	75 4 20	p B; R; b M; r; has s 8 m 2' dist, 45° s f.	23
		24.0	5 34	F; R; b M; 30"	243
1289	I. 212 = II. 750	12 20 24.7	44 10 31	p B; p L; E; p s b M. (I. 212 and II. 750 seem to be identical.)	255
			13 ±	B; m E; rough place.	140
1290	II. 122	12 20 25.9	75 52 23	p B; R; p s b M; the f of 2	338
			51 3	v F; R; v g b M; 15"	2
1291	II. 848?	12 20 41.0	24 15 43	p B; R; g b M. (N.B. My Father's P.D.; if this be the nebula, II. 848 is nearly 6' in error.)	412
1292	III. 483	12 20 43.9	80 54 5	p B; v S; p g b M; R; 10"	250

No.	Synonym.	R 1830-G.	N.P.D. 1830-G.	Description and Remarks.	Sweep.
1293	II. 18 = II. 498	$\begin{matrix} h & m & s \\ 12 & 20 & 58.1 \end{matrix}$	$\begin{matrix} s & l & ' & '' \\ 81 & 14 & 14 \end{matrix}$	B; L; irreg R; b M; r.....	117
		59.6	13 59	v F; R; b M.....	251
1294	M. 49	$\begin{matrix} 12 & 21 & 7.0 \\ & & 7.3 \end{matrix}$	$\begin{matrix} 81 & 3 & 32 \\ & & 3 & 33 \end{matrix}$	R; p g m b M; 40". Through cloud; twilight Seen in strong twilight; a very good obs of place; has a * 13 m 0° f; 60".	153 154
		8.1	4 6	v B; R; v s b M; 2' diam; a * 4.0 f.....	250
		8.7	3 57	e B; L; R; p s m b M; insensibly fading away, has a * 13 m f; by diag the star is just beyond the nebula.	253
		10.1:	3 43	B; L. Cloudy.....	252
1295	II. 629	$\begin{matrix} 12 & 21 & 17.1 \end{matrix}$	$\begin{matrix} 74 & 59 & 22 \end{matrix}$	p B; R; b M; 20".....	24
1296	II. 123	$\begin{matrix} 12 & 21 & 17.8 \\ & & 23.4 \end{matrix}$	$\begin{matrix} 76 & 44 & 23 \\ & & 43 & 46 \end{matrix}$	The first of 3 F; R; S; b M.....	19 245
				v F; R; place estimated, but too roughly to be of any use....	101
1297	III. 362	$\begin{matrix} 12 & 21 & 18.8 \\ & & 48 & 22 \end{matrix}$	$\begin{matrix} 61 & 48 & 37 \\ & & 48 & 22 \end{matrix}$	e F; R; 15" e F; no R A procured.....	417 343
1298	II. 124	$\begin{matrix} 12 & 21 & 36.6: \\ & & 39.3 \\ & & 41.7 \\ & & 42.0 \\ & & 49 \pm \end{matrix}$	$\begin{matrix} 76 & 45 & 23 \\ & & 45 & 35 \\ & & 43 & 34 \\ & & 45 & 6 \\ & & 43 & 59 \end{matrix}$	No description; R A precarious p B; R No description. (Obs probably hurried.) B; S; R; p s b M; 30"; the f of 2 R A roughly estimated from M 87, mistaken for II. 123.....	19 191 192 245 22
1299	III. 531	$\begin{matrix} 12 & 21 & 45.9 \end{matrix}$	$\begin{matrix} 84 & 48 & 45 \end{matrix}$	F; S; E.....	141
1300	Nova.	$\begin{matrix} 12 & 22 & 4.1 \end{matrix}$	$\begin{matrix} 100 & 41 & 54 \end{matrix}$	Not v F; R; g b M; 20".....	129
1301	M. 87	$\begin{matrix} 12 & 22 & 8.7 \\ & & 12.3 \\ & & 12.7 \\ & & 17.7 \end{matrix}$	$\begin{matrix} 76 & 40 & 9 \\ & & 41 & 35 \\ & & 40 & 4 \\ & & 40 & 58 \end{matrix}$	v B; R; 60". (Mistaken for II. 124.) v B; v L; R p B; L; R v B; v L; R; p s m b M; r; 3' diam	22 191 192 245
			41 34.7	v B; R; b M. (Taken past merid; P D too great.)	19
1302	III. 484	$\begin{matrix} 12 & 22 & 13.1 \end{matrix}$	$\begin{matrix} 80 & 41 & 40 \end{matrix}$	v F; v S; 1 E.....	120
1303	II. 91	$\begin{matrix} 12 & 22 & 17.0 \\ & & 17.1 \\ & & 17.8 \end{matrix}$	$\begin{matrix} 72 & 18 & 15 \\ & & 17 & 36 \\ & & 18 & 1 \end{matrix}$	F; R; g b M B; S; R; 25" F. In other respects like II. 56	419 421 25
1304	III. 41	$\begin{matrix} 12 & 22 & 18.8 \end{matrix}$	$\begin{matrix} 77 & 35 & 5 \end{matrix}$	p B; L; R; 40".....	247
1305	III. 499	$\begin{matrix} 12 & 22 & 21.7 \end{matrix}$	$\begin{matrix} 80 & 59 & 16 \end{matrix}$	p B; p L; v g l b M; near two small stars	254
1306	I. 197	$\begin{matrix} 12 & 22 & 49.7 \end{matrix}$	$\begin{matrix} 47 & 26 & 40 \end{matrix}$	S; R; is 70° n p and 3' n of I. 198	150
1307	I. 83	$\begin{matrix} 12 & 22 & 54.4 \end{matrix}$	$\begin{matrix} 63 & 16 & 58 \end{matrix}$	v B; R; v s m b M to a nucl; 40...50".....	58
1308	I. 198	$\begin{matrix} 12 & 22 & 55.5 \end{matrix}$	$\begin{matrix} 47 & 29 & 28 \end{matrix}$	v B; v L; m B; 40° n p to s f; easily r	150
1309	II. 36	$\begin{matrix} 12 & 22 & 55.9 \\ & & 57.7 \\ & & 60.5 \end{matrix}$	$\begin{matrix} 85 & 7 & 23 \\ & & 7 & 35 \\ & & 8 & 31.1 \end{matrix}$	No description A double neb; v F; p L; both R; pos 45° s f by diag; the two are in contact; unequal. Not v F; v L; R; v g b M.....	143 141 142

No.	Synonym.	R 1830-0.	N.P.D. 1830-0.	Description and Remarks.	Sweep.
1310	III. 301	h m s 12 22 56.8	59 55 1	F; R; 30"	65
		..	55 20	p F; R; p s b M	417
1311	I. 234	12 23 16.7	31 6 17	p B; E; p g b M; a * 9 m f 30" dist in parallel	323
1312	M. 88	12 23 23.4	74 38 19	B; v L; v m E; 8' 1, 1' br. The northern half is brighter than the southern.	422
		23.5	38 17	B; L; E; b M to nucl; pos (by diag) = 140° 0 ±; has a * just at its s f extremity.	24
		24.0	38 50	v B; v L; E; g b M. Seen through cloud	23
		...	.....	Viewed; m E in pos = 143° 4 by microm; p s m b M; 7' 1, 1' br	419
		...	37 9	A mere glimpse through a cloud	418
		...	38 ±	pos = 145° 3 by microm; 8' 1, 1' br; s v m b M; has a double star s f.	421
1313	II. 66	12 23 26.0	77 53 32	R; g b M; 30"	3
		28.7	53 4	p B; R; g b M; 30"	242
1314	II. 92	12 23 28.6	72 22 26	e F	421
1315	III. 18	12 23 35 ±	85 4 56	e F; the following of 2 in the field	142
1316	II. 631	12 23 35.8	75 38 26	v F; p m E in parallel; g b M; a * 9 m, 8' f	340
1317	Nova.	12 23 38.2	83 14 4	v S; R; a * 13 m with a burr	251
1318	Nova.	12 23 45.4	56 58 2	v F; S; R; l b M	131
1319	III. 834	12 24 8.9	32 35 57	Not e F; S; R; v g b M; 12"	345
1320	III. 302	12 24 17.5	59 20 22	v F; R; b M; 15"	342
		23.9	21 29	e F	68
1321	Nova.	12 24 23.1	25 19 53	p B; R; p s b M; 20"	412
1322	Nova.	12 24 31.6	81 12 34	F; S; R; b M; 20"	117
1323	III. 78	12 24 32.2	74 28 45	F; R; v g b M; 40"	419
1324	II. 93	12 24 33.3	72 46 26	F; an extremely dilute nebulosity, with a centre almost stellar.	25
1325	Nova.	12 25 1.6	79 52 50	e F; p L; l E; v l b M	120
1326	Nova.	12 25 4.7	25 27 21	p B; p m E; p g b M; 20" 1, 12" br; a * 9 m near	411
1327	Nova.	12 25 4.9	101 4 29	v F; irreg R; b M	129
1328	II. 325	12 25 24 ±	58 48 ±	p F; L; R; 60". (R.A. by working list.)	342
1329	I. 38	12 25 24.4	81 22 2	v B; m E; p s m b M; r; a L * follows	253
		24.9	21 54	v B; m E; p s m b M; a * 8 or 9 m p	251
		25.3	22 3	B. Follows a * 9 m. Good obs of place in a glimpse among clouds.	252
1330	II. 37	12 25 27.7	86 24 28	p B; p L; g m b M; E in pos 30° n f to s p	143
		29.4	24 30	F; L; E; s b M; d	238
1331	II. 67	12 25 26 ±	77 45 32	R; s m b M; stellar 10 ... 12"; has 2 at n p and one s f	3
		29.6	44 39	F; S; R; p s b M	243
		30.9	44 4	F; v S; has a * 9 m about 30° foll	192
		32.4	45 26	p B; R; p g b M; 20"	245

No.	Synonym.	R 1830-0.	N.P.D. 1830-0.	Description and Remarks.	Sweep.
1332	Nova.	^h 12 25 38.9 ^m 39.2 ^s 40.1 41.5	^o 47.42 38 43 31 42 37 41 41	8 Canum. Not the least doubt of a considerable nebulous atmosphere round this star. 8 Canum. Certainly misty though the twilight is strong..... 8 Canum. Involved in a considerable nebula 3' in diam, exactly R; v g b M. 8 Canum. Nebulous. (See the remarks on this phenomenon in the Appendix.)	151 155 150 335
1333	II. 157	12 25 39.4 39.8	75 59 21 59 24	p F; p L; R; v g b M; 80" v F; p L; R; 50"	339 242
1334	II. 147	12 25 40.2	82 36 16	Not v F; E; v g b M; r	254
1335	II. 94	12 25 43.5 44.9	73 30 32 30 24	F; R; b M; r p F	27 422
1336	II. 410	12 25 44.5 44.6	53 31 33 32 52	e F; E; hardly visible for haze v F; L; R; v g l b M; 45"	72 331
1337	V. 2	12 25 47.7	86 52 50	p B; v L; m E in pos 20° n p; s b M	141
1338	Nova.	12 26 2.3	70 51 26	p B; p m E	334
1339	I. 160	12 26 40.3: 42.9 46.4 51.9: 51.0	92 51. 9 51 21 51 13 51 0	B; E 25° n f to s p; v s m b M to nucl; 60" v B; m E; v s m b M to a r nucleus, 2' l, 90" br v B; m E, in pos 5° s p to n f; s m b M to a nucleus B; E, in pos 30° s p to n f; v s m b M to nucl 60"	21 147 146 20
1340	Nova.	12 26 40.6	82 56 41	p F; R; b M; 40"	117
1341	Nova.	12 26 41.0	38 15 23	e F; p L; R; 30"	328
1342	III. 493	12 26 43.±	89 18 7.:	v F; R; g b M; 20"	145
1343	I. 36	12 26 50.5 55.8	76 50 17 51 41	B; R p B; R; b M; 20"; the s p of 2; pos of the other from this by microm = 33°.5.	22 245
1344	III. 802	12 26 50.6 53.9	30 9 7 9 42	The first of 2 nebulae 3' asunder; v F p F; p L; E; v g b M; precedes a * 9 m e F; a * follows 2' dist	3 345 323
1345	II. 120	12 26 51.8 51.9 52.0	74 33 45 34 2 33 40	B; L; p m E; g b M. p B; R; b M; 60" B; R; p s l b M; 60"	419 24 422
1346	II. 850	12 26 52.2	25 32 6	v F; L; wedge shaped, or has a v F * n f, which gives it a distorted appearance.	411
1347	III. 807	12 26 59.1:; 61.1	30 7 37:; 7 57	By long and careful attention I think I see III. 807. Place estimated from III. 802. e F; p L; sky not perfectly clear	345 344
1348	M. 89	12 26 59.8:; 64.2	76 31 25 30 24	B; S; R; m b M; 30". (RA precarious by reason of a fluctuating zero.) B; R; g b M; 40...50". (This RA to be preferred to the rest, which are very uncertain.)	19 192
		29 3:; 31 32:;		F; R; g b M; 25"; has a * n f; rough PD..... R; m b M; rough PD	2 3

No.	Synonym.	A 1830-0.	N.P.D. 1830-0.	Description and Remarks.	Sweep.
1349	I. 37	^{h m s} 12 27 0.5	^s 76.48.12	F; R; 10' of time following I. 36	22
		2.1	49 11	pB; R; bM; 25". The n f of 2; place by comparison with the preceding.	245
1350	II. 343	12 27 14.4	62 32 17	B; R; s m b M; 30"	417
		15.2	32 27	B; irreg R; v s m b M to a s 12 m	243
1351	II. 380	12 27 20.9	62 9 10	F	68
		...	8 32	No description	65
1352	I. 92	12 27 28.0	61 6 6	vB; vL; mE; 4'1, 1'br; 2 or 3 stars near it.	64
		31.1	6 6	vB; vL; mE; pos 60° n p to s f; 3 at follow	65
		31.5	6 21	vL; g b M, but not to a nucleus; mE; has 3 stars s f. By a diagram, the southern end is broader than the northern, giving it a clubbed appearance. (See fig 83.)	66
1353	I. 119	12 27 29.1	81 23 25	B; L; R; g b M	154
1354	Nova.	12 27 30.9	62 6 10	vF; the n f of 2, (the p is II. 380.); a third suspected	68
1355	III. 407	12 27 34.7	69 44 1	No description	61
		36.4	44 47	pB; pL; R; bM; r	63
1356	II. 68	12 27 50.4	77 37 7	B; S; LE; p s m b M	338
		50.8	37 44	No description	242
1357	V. 24	12 27 51.7	63 4 30	vL; an immensely long ray; pos=134° 6' by microm. (See fig 37.) Both Lord ADAM and Mr. HAMILTON, who viewed it with me, agreed that a feeble parallel band extends below the nucleus, as represented in a drawing made at the time, from which that of the engraved figure is (principally) taken. Has a s 10.11 m 45° n f, Δ RA = 5°. (See fig 37.)	407
		52.9	4 35	vL; 15' long, pos = 136° 4' by microm; pos of a s 12 m from nucl = 43° 8'. The nucleus = a s 10.11 m.	417
		53.3	4 28	An uncommonly long narrow ray; E a full diameter of the field = 15' long; 30" broad; s v m b M; pos by ext 45° n p to s f.	68
		54.4	4 42	B; enormously long and very narrow. Pos of the long axis = 137° 4' by microm, very exact. A full diam of field = 15' long, v s b M. I cannot divest myself of the idea of an appendage n of the nucleus running parallel to the lower edge, which seems more sharply cut than the upper. A fine object, but not very bright.	343
1358	Nova.	12 27 54.8	77 47 35	The n p of a fine double nebula; both F; R; g b M; pos 70° n p to s f; dist 1'.	191
		55.4	48 42	A curious bicentral nebula; both the component neb which run together are vF, vL, v g b M.	338
		56.0	49 34	vL; eF; like a vL double neb rubbed out; 4' diameter	243
1359	Nova.	12 27 56.3	77 48 35	The s f of the double nebula	191
1360	III. 880	12 28 1.5	34 50 5	pB; irreg R; g b M; 20". (Much out of place by working list.)	347
1361	I. 32	12 28 13.2	81 49 9	vB; mE; v s m b M, 2' long; pretty bright arms and a resolvable centre.	117
		13.7	49 31	vB; S; mE; v s m b M	254
		14.4	48 55	pB; s b M	154
		14.7	48 54	vB; S; E; p s b M	251
		15.1	49 8	vB; S; v mE; v s b M; 30"1	250

No.	Synonym.	Δ 1850-0.	N.P.D. 1850-0.	Description and Remarks.	Sweep.
1362	III. 602	$12^{\circ} 28' 28''$	$74^{\circ} 48' 12''$	v F; p L; E; v g b M; attached like a tail to a star (place that of the *). (See fig 66.)	24
1363	IV. 8 9	$12^{\circ} 28' 32'' \pm$	$77^{\circ} 52' 10''$	A fine double nebula. Both PB; L; R; v g b M; $60''$ and $45''$; pos estimated from diagram = $315'' \pm$.	247
1364	III. 939	$12^{\circ} 28' 43''$	$14^{\circ} 49' 57''$	e F; only to be seen with very long attention	349
1365	II. 15	$12^{\circ} 28' 55''$	$79^{\circ} 30' 10''$	B; R; s m b M to a nucleus; a * n p	120
1366	Nova.	$12^{\circ} 28' 55''$	$79^{\circ} 35' 26''$	F; R; b M. Query, may not this be the same with II. 15, with a mistake of $5'$ in P.D?	19
1367	M. 91??	$12^{\circ} 29' 0'' \pm$	$75^{\circ} 17' \pm$	A bright * 9 m, and 2 or 3 smaller; close by the B star and s p it, is a small well defined body which may be a close double star, and n p is also a F neb. The place set down is that of MESSIER's 91 st neb, but I do not think this can be that object, whose existence even seems questionable.	243
1368	M. 58	$12^{\circ} 29' 36''$	$77^{\circ} 14' 56''$	v B; irreg R; g b M; a B * precedes $\frac{1}{2}$ field	4
		$5' 4''$	$14' 54''$	B; R; g b M	22
		$8' 1''$	$15' 0''$	v B; v L; E; v s v m b M; r; $5' 1''$, $4' 1''$ br	247
		$16'' \pm$		v B; L; R; place only rough, being observed past meridian	242
1369	I. 124	$12^{\circ} 29' 8''$	$83^{\circ} 42' 0''$	v F; L; R; v g b M; $2'$ diam	253
1370	III. 493	$12^{\circ} 29' 44''$	$55^{\circ} 36' 36''$	F; S; R; b M	74
		$46' 8''$	$36' 3''$	F; S; 1 E	131
1371	I. 125	$12^{\circ} 29' 46''$	$84^{\circ} 44' 45''$	p B; E	143
		$47' 3''$	$44' 45''$	p B; p m E; p s b M	141
1372	III. 504	$12^{\circ} 30' 35''$	$83^{\circ} 2' 34''$	No description	251
1373	II. 31	$12^{\circ} 30' 35''$	$89' 36' 22''$	e F; L; p m E; v g l b M	145
1374	I. 273	$12^{\circ} 30' 40''$	$14^{\circ} 52' 17''$	B; R; p g m b M	349
		$42' 1''$	$52' 6''$	B; R; p g m b M; $30''$; a S * n p; dist $1'$	348
		$44' 4''$	$53' 1''$	v B; R; p g m b M; $50''$	382
		$58' 4''$	$52' 32''$	v B; 1 E; p g b M. The right ascension disagreeing so much with the rest, all the reductions have been carefully re-examined, but no error detected. Perhaps the moveable wire has been mistaken for one of the fixed ones in the obs of the transit, which will sometimes happen. (See Appendix.)	413
1375	II. 183	$12^{\circ} 30' 53''$	$94^{\circ} 24' 36''$	v s m b M, to a * 11.12 m, with a faint chevelure	147
		$54' 6''$	$24' 21''$	p B; E; s b M to nucleus	234
1376	I. 43	$12^{\circ} 31' 10''$	$100^{\circ} 40' 19''$	v B; v m E, in pos $2''$ n p to s f; v s m b M to a nucleus; $5' 1''$, $30''$ br, a B * s p. There is a faint diffused oval light all about it, and I am almost positive that there is a dark interval or stratum separating the nucleus and general mass of the nebula from the light above (s of) it. Surely no illusion. (See fig 50.)	129
1377	II. 632	$12^{\circ} 31' 18''$	$73^{\circ} 46' 32''$	v F	24
		$19' 4''$	$46' 4''$	No description	422
		$19' 7''$	$46' 5''$	p B; L; R; g b M; $40''$	419
		$46' 11''$		p B; p L; R; g b M; $30''$	421

No.	Synonym.	R 1850-0.	N.P.D. 1850-0.	Description and Remarks.	Sweep.
1378	I. 24	h m s 12 31 18.7 19.5 19.5 20.2 21.1	s s s 78 53 6 53 37 53 25 52 27 52 28	B; R; g m b M; has 3 small st. f. B; R; b M; 30" B; S; R; p s b M; has 3 p B at f. B; has a * s f; Δ RA = 2' $\pm$ B; R; p s b M; 3 stars near	4 19 191 22 120
1379	II. 577	12 31 41.7 43.0	85 56 38 56 41	Followed by 2 at 8 m, (nisi RA = 12° 32' 12" 9) F; S; R; precedes 2 at 9 m (nisi RA = 12° 32' 13" 2 — the observations leaving an ambiguity as to the wire employed).	143 141
1380	II. 184	12 31 53.9	94 11 56	F; L; E; v g l b M; 50"	234
1381	I. 254	12 32 22.1	27 26 55	B; L; v m E, in pos = 118° 6 (microm); g l b M; 4' l, 1' br.	344
1382	III. 43	12 32 22.2 22.7	77 9 19 10 26	S; E; 1 or 2 stars near or in it v F; a curious object; 2 or 3 v F at form a line with an oblique ray of neb.	192 245
1383	II. 69	12 32 38.4 40.1	11 $\pm$ 78 54 20 53 48	v F; 2 or 3 v S stars in it p B; R; p s b M; has * 12 m 1' n p, and a * 5.6 m in field n f Almost stellar	3 120 22
1384	II. 20	12 32 49.4 53.6 54.8	81 45 1 45 24 45 22 46 $\pm$ 44 $\pm$	F; R; p s b M; has * 9 m 5' f. Twilight, p B; S; R; p s b M; 20"; a * 8 m s f. v B; S; R; p g b M; a * 10 m 60" f Seen. P D roughly taken; no RA nor any description p B; R; b M; has a * f in parallel, $\frac{1}{2}$ radius of neb from its edge. Rough P D.	152 117 250 154 254
1385	I. 178 179	12 33 19.9 20.4 21.9 23.5	47.54 52 55 58 54 18 54 32	Double; a B, L neb, g b M, with a large F one attached, 70° s f, so as to run together into one; ζ . F; L; dimly seen in twilight No description F; L; R; b M	248 155 151 150
1386	M. 59	12 33 23.0 27.0 $\pm$ 28.4	77.25 28 22 $\pm$ 24 53	B; irreg R; r. F; R; g b M; 20"; has a * n p and one s p. Place very rudely ascertained. v B; S; l E; v s v m b M; 2' l, 1 $\frac{1}{2}$ br	19 2 336
1387	Nova.	12 33 25.7	76 7 15	v F; S; R; v g b M; 15"	247
1388	II. 411	12 33 27.1 29.6 29.7	53 60 25 59 47 59 48	p B; R; has a * f Δ RA = 9° 0. F; R; 15"; a * 9 m follows, pos = 301° 1; Δ RA = 6° 0 .. e F; has s f a * 6.9 m; pos 30° s f by diagram	337 331 72
1389	II. 149	12 33 32.7	81 24 1	p B; E; p s b M.	254
1390	Nova.	12 33 35.5	86 0 26	B; E. RA ill observed	142
1391	II. 659	12 33 40.6	56 29 46	a F neb n p V. 42, and almost close to it	74
1392	II. 660	12 33 42.6 44.1	47 46 32 46 53	F; S; R; No description	150 151
1393	II. 772	12 33 45 $\pm$	96 8 $\pm$	v F; R; has another nearly n; dist 5'. RA by working list. P D rough.	147
1894	II. 773	12 33 47 $\pm$	96 3 $\pm$	RA by working list. P D rough	147

No.	Synonym.	At 1830° O.	N.P.D. 1830° O.	Description and Remarks.	Sweep.
1395	II. 532	$\begin{smallmatrix} h & m & s \\ 12 & 33 & 50.0 \end{smallmatrix}$	$\begin{smallmatrix} s & ' & '' \\ 85 & 6 & 30 \end{smallmatrix}$	v F; v S; R	141
1396	I. 14	12 33 51.7	89 9 2	e F; R; g b M. Sky not clear.	145
1397	V. 42	12 33 53.1	56 31 36	v m E; a long ray which crosses the whole field, rather curved upwards (to s). Has a v F nucl and a B * nearly in the parallel. A F nebula II. 653 is very near it, n p. (See fig 76.)	74
		55.0	31 17	Enormously long, extending across the whole field (15'). Nucleus not well defined. Is preceded by a * 10 m, and that again by a S, F, R neb, forming a fine and very curious combination.	131
1398	III. 603	12 34 7.4	74 45 51	v F; v m E; v g b M	421
		7.8	45 55	v F; L; m E; v g l b M	419
1399	II. 38	12 34 8.4	66 22 28	B; R; b M; 30"	143
		10.2	22 44	B; L; R; v g v m b M, but not to a nucleus	238
1400	Nova.	12 34 9.7	69 7 51	v F; L; v g l b M; 2' diam	334
		10.2	7 16	e F; L; b M; 3' diam (an over-estimation)	61
1401	Nova?	12 34 10.2	85 22 21	v B; R; s m b M; 40". If a mistake of 1° in P.D. be supposed in this obs, the place coincides with that of II. 38, and the descriptions agree.	142
1402	II. 70?	12 34 13±	77 39 12	F; R; g b M. My Father's P.D. is 77° 43', if this be the same object.	3
1403	II. 125	12 34 18.8	75 48 50	B; E; has a * 12 m s f; 1' dist	247
1404	I. 10	12 34 40.2	87 4 53	B; S; 1 E; p s b M	143
1405	III. 44	12 34 53.0	77 28 ±	v F. The preceding of the fine double nebula M. 60	22
		53.3	29 40	v F; p L; 1 E; the n p of 2	191
		53.9	29 53	v F; E about 20 or 30° from n p to s f; it precedes M. 60 about 2½'	19
		58.5	29 4	F; L; 1 E; 2' diam. The n p of 2	338
1406	Nova.	12 34 53.3	33 54 30	e F; v S; R; g b M; 10"	347
1407	II. 794	12 35 0.3	34 12 30	Has 4 v S stars s p in a line	347
1408	M. 60	12 35 2.3	77 31 18	B; R; b M. The brighter of a fine pair, the other is v F; E 30° n p; 2½' dist. (See fig. 74.)	19
		3.1	30 35	A double neb; a very fine and curious object. The p is v F the f v B; both large estimated dist of centres = 4'; pos 45° n p.	22
		3.9	29 39	No description	4
		4.1	31 10	v B; R; has a v F oval neb n p; pos 30° n p, dist 3' by catim.	191
		6.5	30 49	B; R; v s m b M; 90"; the s f of 2	338
		...	31 ±	A most curious double neb 3' dist centre from centre, but the nebulae join with v F nebosity. The fainter rather oval.	3
1409	II. 12	12 35 10.7	72 40 51	v B; R; v g b M; r; 30"	421
		11.7	40 47	Nearly R; g b M; r	27
		13.8	39 56	v B; L; E in parallel; g b M	25
		...	40 48	p B; E. No RA procured.	26
1410	I. 274	12 35 19.5	14 38 32	F; S; b M	346
		21.5	38 27	p F; S; R; p g b M; 15". Among stars	349
		28.0	39 7	p F; S; R; 15"	382
		32.4	39 9	p F; S; R	413
		...	38 25	Follows a fine D * of contrasted colours	170

No.	Synonym.	R 1830-0.	N.P.D. 1830-0.	Description and Remarks.	Sweep.
1411	II. 126	12 35 22.2 24.7	75 56 44 57 46	v F; v L; 2' 1, 90" br; 3 at near, l = 9 m v L; m E; 5' l. Closer examined, it is a double nebula? near several stars, one of which = 8 m.	192 245
1412	II. 661	12 35 27.3 29.1	48 2 46 2 18	e F; near a = 15 m. e F; almost stellar; has a 16 m f very near	335 151
1413	Nova.	12 35 27.9	30 6 26	not v F; p L; g b M. It is about 6' dist n p two B at 8 and 10 m	345
1414	I. 176	12 35 39.3 39.9 40.0 40.4 ...	56 53 46 53 55 54 14 53 41 53 57	A long nebulous ray pos = 34° 3 (microm). Its southern half is fainter than its northern. It meets and cuts? another neb. A strange object. See fig 75. The p and s of two neb which run together, not very bright .. The s p of 2 which run together or are connected by a narrow curve. Shape just made out through cloud. A very extraordinary object. Two nuclei (each g b M) joined by a long curved neck or isthmus of nebula. Two extended nebulae crossing. They run together; the s p is v L; both p F. (N.B. in this obs they appear to have been well seen, and the nature of the object distinctly made out. A good diagram made.)	342 337 341 74 131
1415	I. 177	12 35 47.5 48.8 49.9	56 51 29 51 54 51 10	The s p of two which cross; p F. (See fig 75.) The neb intersected by I. 176 The f of two which run together in a curve	341 342 337
1416	II. 127	12 35 57.3	75 33 42	F; R; b M; 30"	24
1417	Nova.	12 35 58.6	77 52 41	v B; S; v s v b M almost to a *	247
1418	II. 643	12 36 15.6	51 56 5	p B; p L; R; b M; 40"	73
1419	I. 142	12 36 26.1 27.2	86 1 59 0 44	B; not v L; v s b M; has a * 10 m 45° s p dist l' p B; p L; R; g b M; 20"; has a * 11 m pos 235° 5	141 238
1420	I. 15	12 36 26.8	89 31 37	p B; m E; p s b M; pos 45° n f or s p	145
1421	Nova.	12 36 41.6	77 37 39	B; S; R; p s b M; 15"	242
1422	III. 328	12 36 53.4 55.4 57.2 ...	61 56 31 56 46 56 42 57 1	F; v S; R B; S; R; b M; r p B; S; R; g b M. The first of 2 v S; s b M to a * 10 m	64 66 417 65
1423	II. 774	12 36 59.5	96 8 11	F; R; p s b M	147
1424	III. 329	12 37 4.3 15.2 ...	62 0 31 0 32 2 ±	F; v S; R. There is evidently some error in this or the next RA, but it is probably this which is wrong, being observed at quitting the field, and the next being corroborated. p B; v S; the second of 2; Δ RA = 18° 0 v S; s b M = a * 10 m; rough P D	64 417 65
1425	II. 326	12 37 49.9	58 20 14	e F; query if not bicentral; sky perfectly clear	341
1426	II. 181	12 38 33.9	91 48 17	B; not v L; p m E; p g b M	146
1427	III. 398	12 38 43.3 43.4 44.7	69 36 31 36 42 37 51	p B; S; resolved or resolvable. Has a * in centre S; stellar, or a * with a burr S; R; g b M; compact, almost stellar	61 63 334
1428	II. 795	12 38 54.8	34 31 20	p B; p m E; v s b M	347

OF NEBULÆ AND CLUSTERS OF STARS.

433

No.	Synonym.	R. 1850-0.	N. P. D. 1850-0.	Description and Remarks.	Sweep.
1429	III. 543	h m s 12 39 11.0	84 44 11	v F; follows a star	142
		.....	44 ±	e F; 10' following a * 9.10 m	143
1430	Nova.	12 39 12.4	53 43 2	v F; R; p s b M; 15"	331
1431	I. 128	12 39 13.9	75 18 46	e F; v L; E; 4' 1, 3' br	338
		13.8	18 49	p B; v L; E; v diffused	242
		15.0	18 35	p B; v L; E; v g l b M	247
1432	II. 182	12 39 25.7	92 23 57	B; p m E nearly in the parallel; g m b M; 90" l, 60" br	146
1433	II. 381	12 39 28.7	61 51 4	e F; hazy. R A imperfectly taken	67
		34.0	50 26	F; v S; R	64
		35.1	51 1	F; R; b M; (cloudy)	66
1434	II. 72	22 39 39.0	78 4 20	p B; R; g m b M	4
		39.8	5 5	F; S; R	191
		39.9	4 23	No description	22
		40.9	5 30	v F; R	19
		41.8	5 3	not v F; R	120
		42.2	5 16	p B; L E; p s b M	245
1435	II. 796	12 39 47.6	34 41 30	v F; R; v g l b M; 25"	347
1436	I. 39	12 39 48.9	94 52 6	v B; L; E; s m b M to nucleus	147
		49.1	52 16	v B; L E; g m b M; 40" l, 35" br	234
1437	I. 129	12 40 14.0	97 44 25	v B; R; v s m b M to a fine resolvable nucleus, 40". (Doubtless a globular cluster.)	137
1438	III. 524	12 40 15.6	100 28 6	p B; m E 50° n f to s p; a B * precedes	129
1439	II. 662	12 40 42.4	47 8 24	F; R; g b M; sky perfectly clear	151
		44.9	9 12	v F; S; R	150
1440	III. 610	12 40 56.5	94 16 16	v F; R. PD by MS 95°, but it was probably found by the working list, which makes its place 95° as from my Father's obs.	147
1441	II. 95	12 41 8.9	73 54 22	m E; 60"; a ray nebula 75° s p to n f; s b M to nucleus (by diag), a * f.	27
		9.2	54 31	v B; v m E; pos = 25° 5 by microm; b M; 90" long	421
1442	Nova.	12 41 11.0	63 35 53	v F; p L	407
1443	II. 412	12 41 13.5	53 44 27	p B; E	131
		...	.....	Viewed; in field with a * 8 m; too F to take the place, owing to haze.	72
1444	I. 140	12 41 19.5	83 45 26	p B; L; E; 60" l. 50" br; two at s f; 2' dist	153
		19.5	45 57	p B; R; g l b M; 80"	253
		20.5	45 26	F; L; R; g b M	152
		21.1	45 20	p F; L; L E; v g l b M	250
1445	III. 536	12 41 26.9	102 24 47	p F; p L	351
		28.5	23 15	p F; S; R; g b M; 12"	352
1446	Nova.	12 41 47.1	94 21 6	e F; v S; between 2 at 5' asunder	234
1447	III. 611	12 41 53.8	93 13 19	e F; b M	21

No.	Synonym.	R 1830-0.	N.P.D. 1830-0.	Description and Remarks.	Sweep.
1448	III. 424	h m s 12 41 55.9	55 54 45	e F; easily mistaken for a * 15 m	337
1449	III. 280	12 42 0.0	103 24 37	F; R; the n p of two, 1' distant	351
1450	II. 298	12 42 3.4	103 25 7	F; R; the s f and brighter of 2 dist 1'	351
1451	I. 84	12 42 3.6	63 34 23	v B; v L; a v B nucleus in a wide, F, oval atmosphere, 4' 1, 3' br	407
1452	I. 41	12 42 12.5	95 28 16	v F; p L; E; third class; sky perfectly clear and fine	147
1453	II. 73	12 42 31.0	78 10 .0	e F; L	19
		32.6	10 12	p F; p L; irr R; b M; r	4
		32.6	9 26	F; R; has a * 12 m immediately p	2
		34.7	9 24	F; m E in parallel by diagram; has a * near the centre and another at the p end. (N.B. The MS makes the minute of RA 43; but it is possible, from the discrepancy of the descriptions, that it may be a different nebula, but this is unlikely.)	192
		...	10 32	v F; E	3
1454	Nova.	12 42 33.7	84 13 25	v F; v S; R	141
1455	III. 515	12 42 47.5	97 29 20	F; L; R; v g l b M	137
1456	M. 94	12 42 51.9	47 57 2	v B; L; v s m b M, almost up to a nipple-like nucleus. Not resolved, but strong twilight. (See fig 41.)	155
		51.4	56 28	B; L; R or l E; s m b M to nucleus 15" in diam and = a * 8 m, well defined, but not stellar. The nebula 2' diam.	248
		52.0	56 26	e B; R; v s v m b M to a nucleus = in its impression on the eye to a * 9 m, but which will not bear illuminating more than 11 m; diam of neb = 2 1/2'.	335
		52.2	56 42	v B; R; p s v m b M, to a nipple; with 240, r; glimpses of stars seen. A fine object. 90" or 2' diam.	150
		52.9	56 51	The central B part (10" diam) equals a * 9 m, e compressed ..	151
		...	...	Viewed. v B; v s m b M; 4' diam. Not resolved but resolvable. (A very interesting object, being a neb v s m b M on a great scale.)	73
1457	III. 496	12 42 52.±	54 55 25	e F; RA from working list	337
1458	III. 721	12 43 6.8	41 24 6	v F; R; p s b M	329
1459	III. 537	12 43 21.1	102 28 58	p F; S; R; g b M; 12"	352
1460	Nova.	12 43 21.9	77 0 5	p B; m E; r	247
1461	I. 16	12 43 39.3	90 16 37	B; R	146
1462	I. 25 = II. 74	12 43 42.8	77 45 45	R. (There is no doubt of the identity of the nebulae I. 25 and II. 74.)	191
		44.±	44 ±	F; R; g b M; 20". (Viewed.)	2
		44.7	46 14	B; R; p s b M	192
		45.3	45 41	v B; v L; p s b M; r; 2' or 3' diam.	243
		45.6	45 34	p B; R; p s b M; two small stars point to it	243
1463	IV. 78	12 43 54.9	16 11 49	p F; L; R; 40"; the central portion up to diam 30" is nearly uniform, so as to give it an approach to the appearance of a planetary nebula.	382
1464	III. 281	12 44 1.±	104 29 ±	Seen in its place by working list. P D roughly taken. RA from list.	351

No.	Synonym.	R 1890-O.	N.P.D. 1890-O.	Description and Remarks.	Sweep.
1465	III. 70	12 44 16.2 16.3 16.4	73 13 36 13 20 13 32	v F; m E e F; p L; R e F	421 419 27
1466	II. 75	12 44 20.9 22.2 23.4 24.9	77 60 55 49 44 51 14 51 24	p B; v m E in pos = 34° 0 by microm. Remarkably situated under a canopy as it were of 3 bright stars. (See fig 84.) A ray b M almost to a nucleus under an arch or roof of 3 stars 10, 11, and 12 m. p B; m E; under an arch of 3 st v m E; under 3 stars; II. 74 precedes. The eye is led down to it by two smaller st which continue the arch.	191 4 243 192
1467	III. 544	12 44 35.0	84 37 10	F; E; b M; 30" 1; under 3 stars. Rough P D p B; S; R; g b M; 20"	2 141
1468	II. 535	12 44 41.3	87 48 37	F; m E; follows a * 9 m in parallel; sky not quite clear	145
1469	II. 24	12 44 49.7 51.7 56 ±	86 53 56 54 9 56 ±	B; a m b M; R; 1' diam p B; R; g p m b M; 18"; C F; R; g b M; sky turbid; (rough P D)	142 238 143
1470	II. 186	12 44 56.7	95 41 46	v F; L; R; 90"; v g l b M. Its companion looked for but not seen	147
1471	III. 618	12 45 0.6	52 15 17	e F; S; R; b M. Sky perfectly clear	331
1472	III. 106	12 45 17.4 17.6	79 22 1 21 38	e F; p L v F; R	19 22
1473	II. 345	12 46 0.5 2.1 3.7	62 0 11 0 9	F; R; 1' a of a * 9 m A neb attached to a B * 1' n, place that of the nebula No P D taken nor any description	64 67 68
1474	II. 21	12 46 25.1 29.4 30.2	81 1 4 1 11 1 7	B; R; p g b M; 30"; a v S * included, f. No description p B; R; p s b M. Among several stars	117 152 253
1475	I. 93	12 46 26.3 27.0	60 8 1 8 9	not v B; 1 E; has * 8 m 1' dist 80° n f p B; S; E. Query if not bicentral. Near a * 9 m	65 341
1476	III. 548	12 46 36.2	86 10 30	F; S; close to a *	141
1477	II. 382	12 46 38.7 39.4	61 39 26 39 37	p F; R; g b M p B; R; g b M; 40". Minute mistaken, in R A; corrected by comparison with Sw 343 and working list.	343 417
1478	I. 211	12 46 46.1	42 33 19	p B; R; 40"; has a * 15 m p B; R; p s b M; 30"; a * 13 m near n p. P D too roughly taken (being much past the meridian) to be of any use.	255 140
1479	III. 816	12 47 6.1	35 58 40	e F	347
1480	I. 141	12 47 22 ±	84 47	not B; E; g b M. Sky quite clear F; R; b M; sky perfectly clear	142 143
1481	II. 383	12 47 42.2	61 20 1	e F	64
1482	II. 777	12 47 46.9	95 53 41	S; R; b M; wind violent	147
1483	I. 243	12 47 51.3 55.1	30 44 27 44 32	p B; S; R; g b M; 18" p B; L; 1 E; v g b M; 90" 1, 75" br	345 323

No.	Synonym.	R. 1830.0.	N.P.D. 1850.0.	Description and Remarks.	Sweep.
1484	II. 549	h m s 12 48 0'0	s' m' s" 97 36 47	p B; p L; l E in merid; v g b M	137
1485	II. 384	12 48 21'4	61 54 4	v L	67
1486	M. 64	12 48 21'5	67 24 0	B; v L; v m E; v s m b M; well examined. I am much mistaken if the nucleus be not a double star, in the general direction of the nebula: 320 much increases this suspicion; 240 shows well a vacuity below (n of) the nucleus. The neb is 8' or 9' long, and 2' broad.	424
		22'4	23 10	v L, oval neb, with a v S, s B, vivid nucleus. The neb is far feebler; 6' l, 4 or 5' br. I see no "dark recess" in it.	409
		26'1	23 17	B; L; E, 5' l, 3' br; v s m b M, almost to a *, but magnifying destroys this effect. Resolvable but not resolved.	246
		...	...	Viewed, and the appearance of a vacuity below the nucleus verified. April 21, 1833, a careful drawing taken. (See fig 27.)	
1487	II. 346	12 48 39'0	62 4 46	v F; p L; 35"	65
1488	III. 817	12 48 50'7	36 46 58	e F; R; S; b M.	328
1489	Nova.	12 49 1'6	40 16 26	A rather doubtful object; haze	329
1490	Nova.	12 49 8'2	102 8 10	v F; has 3 small stars s p	352
1491	II. 536	12 49 10'7	87 30 37	F; p L; E; v g b M; has a * 30" n f.	145
1492	III. 613	12 49 14'9	92 41 40	F; l E; has a * 30" dist, 45° s f, 12 m	146
1493	II. 387	12 49 17'9	60 36 22	p B; R; a v S star makes it elongated	417
		18'7	36 8	p F; double, n f, dist 20"	343
1494	II. 386	12 49 28'±	61 40 6	F; R; RA by working list	68
1495	Nova.	12 49 44'3	51 42 17	e F	331
1496	II. 385	12 50 21'0	61 28 52	p F; v S; R; s b M; 10"	417
		21'8	28 26	v F; R; p s l b M; 20"	343
1497	I. 68	12 50 25'3	104 7 47	p B; R; s b M; 25"	351
		25'3	7 33	p B; R; p s b M; 20"; a * 13 m pos 140°; dist 1 diam by diag	352
1498	I. 162	12 50 58'1	74 54 40	B; E from s p to n f; s m b M; has a * involved, p its centre, in the parallel.	23
		58'3	54 40	B; m E; s b M, to nucleus; has a S * n p	419
		58'5	54 12	B; E in parallel; s b M to nucl; 2' l, has a * in it 15 m, 10° n p the nucleus.	24
		58'7	54 41	B; m E; s b M. The ray passes through a S *	421
		59'2	54 30	p B; v m E; s b M; has a * or 2 14 m near.	247
		60'4	55 4	B; v m E in parallel; has * 12 m, 3'0 p, at the n edge of neb.	335
1499	IV. 30	12 50 56'6	54 13 33	F; S; R; much doubt as to nature of the object. Haze	72
		57'9	12 58	An e F nebulous ray (pos about 30° by diag) connects 2 stars 10 and 12 m by obs. The minute of RA is 51, but this is probably a mistake in reading the chronometer.	337
		61'6	17 ±	a v F neb; E n f to s p, between 2 stars, the southern of which is ill defined. Both seem to belong to the nebula. Place very ill determined, the P.D especially being a mere estimation from a v distant *. (See fig 62.)	131
1500	Nova.	12 51 14'±	61 7 ±	The first of 5 south of a * 7 m. Place by configuration with the others.	343

No.	Synonym.	R 1850-0.	N.P.D. 1850-0.	Description and Remarks.	Sweep.
1501	II. 388	$\begin{smallmatrix} h & m & s \\ 12 & 51 & 21.4 \\ & 23.5 & \\ & & 8 \pm \end{smallmatrix}$	$\begin{smallmatrix} \circ & ' & '' \\ 61 & 8 & 1 \\ & 8 & 31 \\ & & 8 \pm \end{smallmatrix}$	F; S; R..... v F..... The second of 5, south of * 7 m	63 64 343
1502	II. 389	12 51 33 $\pm$	61 7 $\pm$	The third of 5; place by configuration	343
1503	III. 83	12 51 38.8 39.7	76 36 10 36 54	F; v L; R; v g b M; 2'	245
1504	Nova.	12 51 44.2	95 56 6	v F; p L; R; v g l b M.....	192
1505	II. 778	12 51 46.9	95 9 16	v F; v S; E	234
1506	III. 64	12 51 51.3	93 40 19	p F; v S; E; p s b M.....	147
1507	II. 391	12 51 54.5: 59.6:	61 5 21: 5 58	v F; R; b M..... No descrip. The RA very loosely determined	21 64
1508	II. 390	12 52 1.1	62 11 19	B; p m E; b M. The fourth of 5, s of * 7 m	343
1509	I. 143	12 52 1.9 2.4 ...	86 35 30 35 18 35 $\pm$	e F..... A * 10 m, has an oval neb attached, 45° n p. (See fig 67.) ..	68 141 143
1510	Nova.	12 52 2.7: ...	61 8 1: 7 $\pm$	A star 11 m, with a fan or brush	142
1511	I. 69	12 52 3.4	103 36 12	B; S; R; in parallel with another which it follows.....	65
1512	Nova.	12 52 13.5	41 52 6	The last of 5, south of a * 7 m; more suspected to the south..	343
1513	IV. 47	12 52 39.9 ...	93 37 39 39 $\pm$	p F; R; near some stars	351
1514	II. 645	12 52 45.3 46.3	51 44 2 45 3	p F; S; R; 10'; g b M	329
1515	Nova.	12 53 5.2:	41 52 8	p B; R; g b M; nothing very remarkable	21
1516	II. 393	12 53 12.5 ...	61 12 14 11 52	R; rough P D, taken past meridian	147
1517	II. 300	12 53 15.9 16.3	104 3 37 3 16	e F; s f a * 17 m, (1 radius from edge by diagram).....	331
1518	II. 394	12 53 16.0	61 15 4	p B; v S; s m b M.....	73
1519	II. 779	12 53 17.9:	96 48 0	e F; S; E; b M.....	140
1520	I. 40	12 53 25.7 26.5	94 38 31 38 51	F. There are several more in the neighbourhood.....	67
1521	Nova.	12 53 28.9	37 45 38	F; p L; 40''	417
1522	II. 395	12 53 39.4	60 54 0	v F; R; b M	351
1523	II. 188	12 56 17 $\pm$	95 35 36:	v F; irreg R; v g l b M. (N.B. My Father has two observations of this nebula; both agree in making the PD 103°, but mine are both correctly reduced, and there is no appearance of any mistake.)	352
1524	II. 396	12 53 16.0	61 15 4	v F; one of several. (N.B. One of these must have been II. 392, which is said to precede 393 and 394, dist 8'.)	67
1525	II. 779	12 53 17.9:	96 48 0	v F; RA doubtful	137
1526	I. 40	12 53 25.7 26.5	94 38 31 38 51	p F; L; v g b M; E; 60'' l	234
1527	Nova.	12 53 28.9	37 45 38	F; R; b M; sky very clear	147
1528	II. 395	12 53 39.4	60 54 0	e F; R; p s b M.....	328
1529	II. 188	12 56 17 $\pm$	95 35 36:	F; R; b M; has * 9 m 45° n f; 1' dist	68
1530	II. 396	12 53 16.0	61 15 4	v F; R; sky very clear. Wind. RA by working list; PD inaccurate.	147

No.	Synonym.	R 1830-0	N.P.D. 1830-0	Description and Remarks.	Sweep.
1524	II. 396 III. 303	h m s 12 56 46.6 49.0 50.0 51.0 55±	° ' " 59 57 31 58 9 57 41 57 58 57 35	v F; S; R. (N.B. The nebulae II. 396 and III. 303 are no doubt identical.) v F; R; III. 303 looked for and suspected; minute in RA = 57 by obs; but this is an evident mistake. B; R; s m b M to a * = 11 m. p F; S; p s b M; 12" Barely visible in twilight. The RA very uncertain from fluctuating zero. (There is also an obs in Sw 341, which may perhaps refer to this nebula; but the minute is wrong, and it is described as "suspected" but not sure.)	64 341 65 342 259
1525	II. 413	12 57 0.3 3.1	53 54 45 54 32	p B; R; s b M; 25" p B; R; p s b M; 25"	337 331
1526	II. 397	12 57 0.5	61 31 7	F; R	67
1527	Nova?	12 57 30.1 38.3	13 41 13 40 37	v F; S; R; s b M; 12". (The place is within barely possible limits of III. 937.) v F; R; v g b M.	348 349
1528	Nova.	12 57 37.2 54 ±	55 54 51 54 ±	e F; S; R e F. Seen in its place as determined by former sweep	74 337
1529	II. 398	12 57 37.9	61 21 17	F; irreg fig; b M	68
1530	II. 663	12 58 3.4 5.9	47 21 22 21 38	v F; R; S; 15" F; e S; stellar; 5"; has a v S * near it, to s	248 151
1531	III. 304	12 58 7.4 10.7 3 ±	60 2 22 2 9 3 ±	v F; R; s b M; near a double * F; l E; v g l b M; pos from the double * h 2626 = 34° 9 by microm. v F; l E; pos from a * 7.8 m = 44° 0	417 342 343
1532	III. 779	12 58 12.3	32 46 17	e F; S; l E; a sure obs	345
1533	III. 783	12 58 17.8	35 31 0	Either a v F neb and star attached, or a nebulous double star, a doubtful object. The RA differs materially from that of my Father's III. 783.	347
1534	Nova.	12 59 3.8	94 6 21	v F; v S; R; p s b M; 10"	234
1535	Nova.	12 59 28.6 30.2	70 40 16 40 41	v S; R; s b M; stellar F; v S; R; p s b M	61 334
1536	II. 301	12 59 57.9 58.2	104 36 32 35 34	B; R; p s b M; 30" v B; R; p s b M; sky remarkably fine	351 352
1537	II. 189	12 59 58.9	95 51 66	F; p L; R; 50"; has a * 9 m, 80" dist s f	147
1538	III. 401	13 0 26.5 27.6	53 53 12 53 47	e F; S; R F; S; R; b M	331 131
1539	III. 654	13 0 28.1	47 25 18	v F; v S; R; 10"	151
1540	I. 42	13 0 30.4	96 56 0	Not v F; R; v g b M; 40"; has a * 8 m, n p	137
1541	Nova.	13 0 36.5	77 27 22	v F; S; l E; north of 2 small s	338
1542	Nova.	13 0 36.7	37 9 13	p F; S; R; 8...10"	328
1543	II. 537	13 1 1.2	87 25 57	e F; R; l b M; sky not perfectly clear	145
1544	II. 366	13 1 39.7	60 11 1	F; l E	65

No.	Synonym.	R 1850-0.	N.P.D. 1850-0.	Description and Remarks.	Sweep.
1545	Nova.	13 2 20.9	35 34 50	not v F; S; irr R; g b M	345
1546	III. 305	13 2 54.9 61.7:.	59 26 31 27 35	e F; v S; R F; R; distinctly seen in twilight, but R A doubtful to the extent of 10°.	64 259
1547	I. 96	13 3 5.0 5.2	52 1 24 1 40	v B; v L; m E; 4' 1, 1' br; v s b M to a nucleus, pos by diagram = 30° n f to s p. v B; m E, in pos 20° n f to s p by diagram; s m b M; 2' long.	73 72
1548	Nova.	13 3 15.2	104 53 33	v F; R; b M; a * 10 m 45° n p, dist 5'	352
1549	I. 85	13 3 21.4	66 10 15	v F; L; double or wedge-formed bicentral; pos 17° 0 per microm. Each neb v g l b M; a large * (the first of a trapez) 24' f.	409
		21.8	11 15	not v B; E; g b M; 50"; has a * 9 m 23' foll, the first of a trapezium.	424
1550	III. 820	13 3 27.2	39 0 16	e F; R; s p a * 15 m.	329
1551	II. 414	13 3 38.6	52 49 7	p B; S; p m E; p s b M	331
1552	II. 637	13 3 42±	93 26 26.:	No description. R A by working list.	147
1553	III. 669	13 3 52.8	105 51 16	v F; R; b M	354
1554	II. 746	13 3 54.6	108 36 28	B; R; p g m b M; 30"	355
1555	III. 545	13 4 5.4	84 21 31	e F; S; R	142
1556	II. 129	13 4 12.4	76 29 54	v F; R; p s l b M; 50"	338
		12.8	29 59	L; R; straggling borders; p s m b M	242
		13.8	29 44	F; p L; E; 30" long.	192
1557	Nova.	13 4 26.3	42 54 25	p F; R; 40"; has a * 12 m 1½' n f	255
1558	M. 53	13 4 32.3	70 55 26	A most beautiful highly compressed cluster. Stars very small, 12... 20 m; with sc st to a considerable dist; irreg R, but not globular. Comes up to a blaze in the centre; indicating a round mass of pretty equable density.	25
		33.4	55 38	extremely compressed. A most beautiful object	26
		33.5	55 32	Seen by Mr. BAILY. A fine compressed cluster, with curved appendages like the short claws of a crab running out from the main body.	63
		34.6	55 6	A mass of 'close-wedged stars 5' in diam; a few = 12 m, the rest of the smallest size and innumerable.	61
		35.1	55 33	Observed with Mr. BAILY	62
		...	...	Viewed. A most beautiful cluster.	334
1559	II. 664	13 4 32.9	45 3 24	F; m E; 70° n f to s p; 90" 1, 20" br	151
		37.0	2 53	F; a long ray 3' 1, 20" br; v l b M	140
1560	III. 649	13 4 43.5	57 17 49.:	Obs somewhat doubtful. The P D may err 2', as clouds prevented verification.	341
		46.0	17 11	e F; R; has a * 14 m to n.	74
		46.5	16 57	v F; E; S; 30" s of a * 13 m	131
1561	Nova.	13 4 45.6	83 1 58	v F; R; g b M; 20"	251
		46.4	1 59	e F; R; v g b M.	250
1562	Nova.	13 5 7.7	42 1 3	F; R; g b M; 15"; twilight.	257

No.	Synonym.	R. 1830-0.	N.P.D. 1830-0.	Description and Remarks.	Sweep.
1563	III. 367	h m s 13 5 18.1 22.2	61 18 1 17 48	F; not v S; R e F; irr R. Sky growing thick	65 343
1564	I. 97	13 5 35.2 37.6	52 29 38 30 32	B; p m E; s m b M; a * n p. a v B nucleus with F branches, position = 166° 8 per microm.	72 331
1565	II. 510	13 5 57.3 57.4	105 41 52 41 3	p F; R; b M; 25". A * 12 m 1' n p. No description	354 157
1566	II. 511	13 6 21.4	105 29 15	p F; p L; R; 30"	354
1567	Nova.	13 7 34.9	59 24 9	v F	342
1568	II. 513	13 7 55.5	105 44 13	v F; R; 20"	354
1569	VI. 7	13 8 24.4	71 25 41	v L; e F; a cluster of stars 19 or 20 m, with 4 or 5 = 15 m; irreg R; v g v b M; diam at least 8 or 10'. A most curious and interesting object. The stars are just discernible. So faint, might easily be overlooked. R A of working list very much out, by reason of which the obs was nearly lost and quite spoiled.	334
		...	25 32	v F; v L; 7' diam; v S stars 15... 20 m. Its true R A much precedes that in the working list.	27
1570	M. 63	13 8 10.9	47 4 12	B; p m E; v s m b M, almost to a * pos 30° n p to s f. The s f end more diffused. Has a B * n p and a D * f.	151
1571	III. 306	13 8 13.3	58 8 36	F; S; R; b M. The first of 2	74
1572	III. 307	13 8 27.7	58 3 43	F; S; R; b M. The second of 2	74
1573	III. 308	13 9 32.8	58 0 30	v F	342
1574	III. 282	13 10 19.4	103 57 22	v F; p L; E	351
1575	III. 309	13 10 31.6	57 37 45	e F	342
1576	III. 117	13 10 32.0	101 49 45	v F; S; R; 15"; the s p of 3	352
1577	II. 193	13 10 34.5	101 45 2	B; R; s b M; 20"; the northern and second of 3	352
1578	III. 118	13 10 41.1	101 48 12	v F; p L; 1 E; 40"; the f of 3	352
1579	II. 313	13 11 5.3	110 55 7	B; R; p s b M; 35"	355
1580	II. 327	13 11 37.5 39.7	58 51 21 52 45	p B; p L; g b M No description	65 259
1581	II. 539	13 11 46.9	103 11 22	p F; S; R; g b M; 15"	351
1582	Nova.	13 11 51.9	91 24 37	v F; R; g b M. It is 40° n f a * 11 m.	146
1583	III. 633	13 11 59.0	48 41 53	v F; R; b M; 12"	155
1584	III. 650	13 12 15.6	56 1 31	F; S; R; b M; the s p of 2	74
		...	58 11	Viewed. e F	337
1585	Nova.	13 12 23.2	55 58 1	F; S; between 2 stars; the n f of 2	74
		...	57 30	e F	337
1586	III. 619	13 13 44.6	50 32 54	v F; 1 E; 30" 1	155
1587	III. 119	13 13 57.4	102 5 12	not v F; R. Nearly lost by looking too late, the R A of the working list being too great.	351
		58.3	3 58	F; R; g b M; 20"	352
1588	II. 626	13 14 3.4	31 27 32	v F; p m E; 30"	345
1589	II. 646	13 14 16.9	50 22 1	v F; L; R; v g l b M; 2'	73

OF NEBULÆ AND CLUSTERS OF STARS.

441

No.	Synonym.	R 1850-0.	N.P.D. 1830-0.	Description and Remarks.	Sweep.
1590	III. 368	^{h m s} 13 14 52.9 54.7	^{° ' "} 62 8 22 7 38	Not v F; p m E; 1 b M; 30" 1; pos 40° inclined to the parallel. Not v F; irreg fig; v g b M; sky rather dull.	417 343
1591	III. 925	13 14 54.0 ...	82 43 6 45 ±	F; R; g b M; 20" F; R; g b M; 30". PD only rough, being taken much past meridian.	152 153
1592	Nova.	13 14 54.2	60 47 11	v F; L; makes an equilateral triangle with 2 stars 11 m, n p.	65
1593	Nova.	13 15 33.1	79 23 40	Not v F; S; R; g b M	120
1594	II. 666	13 15 40.4	46 1 16	F; R; g b M; 35"	151
1595	II. 653	13 15 45.5 47.4 48.7	75 7 40 8 7 7 44	F; R; g b M; 15"; a D * follows 7*5 p B; R; not v s b M; a coarse D * follows p B; R	420 338 192
1596	II. 328	13 15 50.2 52.5 ...	57 32 38 33 17 32 30	p B; R; g b M. No other near p B; R; follows a D * of the third or fourth class p B; p L; s f a small group of stars 13 m	74 259 342
1597	II. 314	13 16 6.3	110 13 55	F; p L; 1 E; v g b M.	355
1598	III. 84	13 16 31.0 ...	75 21 54	e F; R; S; p s b M; 15" Viewed; v F; R; b M; 15"	192 338
1599	III. 402	13 17 7.2 8.6	52 43 37 43 42	v F; R p F; R; v s m b M to a *. Has a * 12 m preceding. The s p of 2 nebulae.	71 331
1600	III. 403	13 17 17.7 18.1	52 40 1: 42 37	p B; R; the n f of 2 p F; R; v s b M to a *	71 331
1601	II. 25	13 17 38.7 41.3	86 61 1 59 56	F; 1 E; v s m b M to a * 12 m; 30" B; R; p s b M; 30"	145 142
1602	II. 667	13 17 45.9	45 51 12	Not v F; R; g b M	151
1603	Nova.	13 18 20.5 22.1	72 14 30 14 32	v F; R; has a * 7 m, 6' north e F; S; R; has a B * n f	420 27
1604	III. 404	13 18 25.5 26.3	53 10 23 10 27	p B; b M; the s p of 2 Not v F; E; g b M; 40"; the s p of 2	72 331
1605	III. 405	13 18 45.5 45.8	53 7 38 6 54.1	v F; the n f of 2 e F; L; R; it is 45° n f III. 404	72 331
1606	III. 651	13 19 25.3 26.1 27.5	57 5 36 4 40 5 7	e F; R; 30" Not v F; p L; E; the p of 2, very similar F; R; b M.	74 337 131
1607	Nova.	13 19 32.4	71 20 8	v F; R	26
1608	Nova.	13 20 23.6 23.8 25.5	57 4 55 5 36 5 7	Not v F; p L; E; the following of 2, very similar p F; R; b M; 30" p F; E; 1 b M.	337 74 131
1609	III. 784	13 20 27.3	33 37 40	v F; R	347
1610	V. 22	13 20 40.8 41.2	107 5 26 4 48	F; v m E in pos 128° 6 by microm; p g b M; 180" 1, 30" br. F; L; E; v g b M; twilight	354 157

N ^o .	Synonym.	Δ 1830-0.	N.P.D. 1830-0.	Description and Remarks.	Sweep.
1611	III. 672	^{h m s} 13 20 51.8	^{o ' "} 42 28 59	v F; R; 50"	235
1612	III. 45 III. 46	13 20 59.4 60.3	78. 6 44 6 40	v F; two close together, or one E nearly in merid. A star 11 m n e F; E; involves a * at the S end, and has a * 6 m, 15' s and a few seconds preceding.	242 120
1613	Nova.	13 21 0.0 1.9	72 3 45 4 8	F; p L; R; p g b M; 40"	420 26
1614	Nova.	13 21 11.3 12.3	42 31 49 32 19	p F; R; v s b M; almost stellar	255 256
1615	III. 70	13 21 9.4 ...	72 17 37 17 35	p B; R	27
1616	Nova.	13 21 19.8 21.3	75 48 44 49 5	v F; has either a star excentric or a double nucleus	420
1617	II. 679	13 21 22.4	90 50 37	F; S; R; 15"; has a * 7 m nf, 8' dist. No R A procured ..	338
1618	II. 660	13 21 27.4	90 46 42	e F; R; 20"	247
1619	III. 642	13 21 40.7	75 42 19	F; l E; g b M; 20"; the first of 2	146
1620	III. 652	13 21 58.0 ...	57 59 17 59 16	F; nearly R; g b M; 30"; the second and brighter of 2	146
1621	Nova.	13 22 22.8 22.9	70 59 21 58 36	e F; R; 25". (Seen also in Sw 192.)	338
1622	M. 51	13 22 37.1 38.5 38.9 40.0 41.5 43.8	41 56 9 56 13 54 53 55 36 57 28.1	v F; R; g l b M; 15"	342
1623	I. 186	13 22 46.0 47.0 50.0 50.3	41 51 $\pm$ 51 16 52 13	F; R; b M; much past merid, and no R A to be procured.	74
1624	III. 406	13 22 58.8 60.5	54 17 45 16 37	p F; R; g b M; 20"; a coarse triple * f.	334
1625	IV. 63	13 23 4.3	30 42 12	v F; S; b M; has a considerable triple * following, dist = 8'. A very bright round nucleus surrounded at a distance by a neb- ulous ring. (See fig 25, and the Note on this neb in the Appendix.)	61 255
1626	III. 643	13 23 53.5	75 13 34	A most astonishing object, &c. (See Appendix as above.) ...	140
1627	III. 9	13 23 55.4 56.3 57.9 ...	81 46 17 48 26 46 57 48 $\pm$	A nucleus and double or divided ring, &c. &c.	257
1628	III. 10	13 24 12.1 13.4	81 47 37 48 27	Place of the nucleus. The rings barely discernible for a haze. p B; E; v g b M; seen through cloud	329 138 256
				(See Appendix.)	256
				B; R; v s b M to a *. This nebula is the companion of M. 51 and is figured with it.	140
				.....	329
				.....	138
				.....	256
				No description	337
				.....	71
				No description	345
				p B; irreg R; g b M; 90"; r; no nucleus seen	192
				A F oval wisp attached to a * 11 m.	233
				F; S; R;	152
				F; S; R; p s b M; 10"; almost stellar	230
				F; R; like a * with a burr; the first of 2	251
				Seen in its place; p B. No R A observed	253
				F; S; R;	250
				F; R; s b M; 15"; like a burred *. The second of 2	250

No.	Synonym.	R 1850-0.	N.P.D. 1850-0.	Description and Remarks.	Sweep.
1629	III. 99	h m s 13 24 18.1	81 56 57	F; S; R; p s b M; 15"	153
		...	58 ±	F; not v S; R; p s b M. (Past merid.)	132
1630	Nova.	13 24 21.8	90 9 32	p B; S; R; v s m b M; 20"	145
1631	Nova.	13 24 51.8	81 49 47	e F	253
1632	III. 636	13 25 26.0	47 15 18	v F; R; g b M; 30...40"	151
1633	III. 926	13 25 37.0	82 38 32	A * 9 m with a F, very dilute nebulous atmosphere. (Possibly the minute of R A should be 26.)	153
1634	Nova.	13 25 51.1	71 16 8	v F; S; R; b M	26
1635	Nova.	13 26 12.6	26 24 36	R or l E; g b M	411
1636	II. 841	13 26 19.1	26 21 26	Not v F; p L; R; g b M; 35"	411
1637	III. 86	13 26 35.9	75 17 31	e F; R	338
		36.4	19 35	F; R; p s b M; 25"	247
1638	III. 85	13 26 36.2	75 23 4	v F; S; R	192
		36.4	22 38	p B; S; R; s b M; 30"	247
		37.3	23 29	v F; R; v g l b M; 20"	242
1639	III. 87	13 26 36.9	75 28 11	v F; R; g l b M; 20"	338
		...	28 0	v F; R; p L; R A not observed, but P D taken in time	192
1640	III. 407	13 26 43.0	54 25 57	F; S; R; has a * s p	131
		45.4	25 18	F; S; g b M; 15"; has * 10 m 30° s p, dist 40"	72
		45.9	25 27	F; R; b M. A star very near	71
1641	III. 928	13 26 52 ±	87 44 ±	v F; R. R A by working list; past merid.	145
1642	III. 408	13 26 54.9	54 19 53	F; S; R; g b M; 15"	72
		55.9	20 17	F; R	71
1643	Nova.	13 27 3.5	75 26 28	F; L; E; v g b M; 50" l, 45" br	247
1644	III. 100	13 27 26.0	82 31 2	F; p L; R; very dilute; n f a * 9 m	153
		28.2	32 34	The faintest thing imaginable	251
		30.2	33 1	v F; S; R	253
1645	III. 425	13 27 30.3	54 27 32	F; S; R; has a v S * near	131
1646	III. 101	13 27 57.9	81 45 29	v F	250
		...	46 ±	v F; R; 25". No R A taken; past merid.	153
1647	Nova.	13 28 29.7	86 21 33	e F; v L; fills the whole field. Strongly suspected; yet a doubt remains.	143
1648	III. 620	13 28 44.2	50 46 26	p F; E or obscurely bicentral; l b M, pos of elongation 25° n f by diagram.	73
		45.7	47 49	v F; p L; l E. P D probably erroneous from a shifting of the microscope.	155
1649	II. 227	13 28 52.8	107 0 50	v F; v L; p s b to a brighter kind of nebula; a good type of its class. It loses itself quite imperceptibly. Diam of the faint neb = 2"; of the brighter part or nucl = 10 or 15". (See fig 39.)	354
		53.5	0 48	v F; p L; g b M; 40...50"	157
1650	I. 34	13 29 5.5	80 14 18	p B; v L; E, 60° n p to s f; p s b M; 3' l, 2' br	120

No.	Synonym.	At 1830-0.	N.P.D. 1830-0.	Description and Remarks.	Sweep.
1651	III. 72	$\begin{smallmatrix} h & m & s \\ 13 & 29 & 20.6 \\ & 21.0 \\ & 21.6 \end{smallmatrix}$	$\begin{smallmatrix} s & s & s \\ 73 & 9 & 8 \\ & 9 & 15 \\ & 9 & 17 \end{smallmatrix}$	e F; S; R; b M. p F; R; 25" v F; S; R	26 420 27
1652	III. 369	13 29 20.1	61 42 31	v F; R; S	65
1653	III. 505	13 29 50 $\pm$... 36 $\pm$	84 37 1 36 $\pm$	F; R; b M; 30". No RA taken, but inserted from working list e F; S; R; rough P.D. RA per working list.	142 143
1654	II. 895	13 31 13.7	68 17 43	The first of 2 composing a double nebula; both v F; R; b M. The smaller of the two.	145
1655	II. 896	13 31 18.2	68 18 3	The second and largest of 2, composing a double nebula.	145
1656	III. 673	13 31 18.9	40 50 23	v F; R; v S; g b M; 10"; in field with a double star	237
1657	Nova.	13 31 40.3	84 4 4	e F; among stars. Wind extremely troublesome	251
		45.6	3 45	v F; R; among some p B stars. (N.B. The RA of this obs to be preferred.)	250
1658	III. 370	13 32 3.6	60 44 1	p B; has a * 9 m 4' dist; 45° s p.	65
1659	III. 410	13 32 38.6	52 16 7	F; p L; r; has a * near	71
		38.8	16 38	F; S; irreg R; r	72
1660	Nova.	13 32 44.5	14 5 2	e F; S; sky perfectly clear	348
1661	Nova.	13 33 13.4	50 21 6	p F; R; 20"; has a small * p	155
		13.4	20 21	F; S; R; g b M; 20"	73
		14.6	21 56	e F; R; has a * n p dist 3'	335
		14.8	19 56	No description	156
1662	Nova.	13 33 34.7	84 52 35	e F; S; between 2 stars	141
1663	M. 3	13 34 12.2	60 46 22	A most superb object, diam = 10"0 of time in RA. Not less than 1000 stars 11 m and under. They run into a blaze at the centre, and form as it were radiating lines and pointed projections from the mass, with many stragglers.	417
		18.0	45 51	I just see the stars through a cloud so thick as almost to obscure Arcturus; 6' diam, but in a clear night no doubt more.	64
		18.1	46 8	Observed with Capt. Smyth, who "saw something remarkable" in a small * 2" or 3" preceding it, which proved on closer examination to be a fine first class double *.	415
		19.5	45 46	Very beautiful; stars 11...15 m; fills field, making lines and irregular rays of stars, and coming up to a blaze in the middle.	65
		20.7	45 38	A noble globular cluster 5 or 6' diam, entirely resolved when not a star near it, even Arcturus, was visible to the naked eye for clouds.	343
1664	I. 98	13 34 35.5	53 28 42	B; R; first g and then p s b M; 50"	331
		36.3	28 22	p B; R; g m b M; 50"	71
		36.3	28 48	B; R; g m b M	72
1663	II. 798	13 35 15.6	33 28 15	v F; double neb; pos = 73°0 by microm; a large star follows dist = 15' $\pm$.	347
		10.3	28 20	v F; 1 E; s p a bright *	346
1666	II. 668	13 37 52.5	47 38 28	v F; v S; R; almost stellar	151
1667	III. 785	13 38 50.1	33 51 20	e F; hardly more than a violent suspicion, owing to auroral light in the sky.	347

No.	Synonym.	Δ 1830-0.	N.P.D. 1830-0.	Description and Remarks.	Sweep.
1668 I. 180		$h \ m \ s$ 13 39 16.3	$^{\circ} \ ' \ ''$ 45 18 26	Not vB; E 45° n p to sf by diagram; g b M	151
1669 II. 333		13 39 38.9	85 12 28	vF; vL; 1E; v g b M; 2'1, 3' br. In the obs the minute of RA comes out 38 instead of 39, but this is an obvious mistake.	143
		39.3	12 35	vF; vL; R; v g b M	141
1670 II. 688		13 40 ±	43 0 23	pF; R; mE	255
1671 II. 306		13 40 17.1	96 23 6	eF; R.	137
1672 III. 681		13 40 21.8	60 61 16	pB; S; has two nuclei or involves a double star.	155
1673 III. 621		13 40 32.4	51 19 7	eF; S; R	331
		33.2	20 39.1	eF; a strong haze; PD uncertain	28
1674 I. 255		13 41 19.9	28 9 57	pB; S; mE in pos 57° 4 by micr; p s b M; 30" l.	344
1675 II. 710		13 41 39.5	49 10 41	eF; hardly visible for haze. The preceding of two in parallel. (N.B. As haze cleared, pB.)	335
		40.4	10 5	F; vS; R; s b M	73
1676 III. 422		13 42 16.6	55 32 26	vF; R.	74
		18.4	32 0	vF; the first of 3; pos with III. 423 = 241° 5 by micrometer	337
1677 Nova.		13 42 26.5	49 10 41	The f of 2 in parallel; pB; pL; 1E; g b M	335
		29.5	10 42	pB; S; E; 1 b M; the f of 2	73
1678 Nova.		13 42 37.8	84 0 30	vF; vL; v g b M; R	141
1679 III. 423		13 43 2.4	55 27 5	pB; S; R; p s b M; 15"; the second of 3	337
			28 ±	F; S; R	131
1680 Nova.		13 43 8.9	55 30 39	eF; at first sight very like a *, but on long attention a pL neb surrounds it. Pos with III. 423 = 159° 5 by microm.	337
			30 ±	pB; R; s m b M; taken much past meridian. No RA procured	74
1681 II. 307		13 43 9.7	95 12 16	F; L; R; g b M; 50 or 60"	147
1682 II. 669		13 43 10.9	47 47 14	F; R; g b M; 40"	151
1683 II. 685		13 43 19.4	91 21 34	F; R; a * precedes	146
1684 I. 256		13 43 33.0	28 57 17	vB; R; p s b M; 40"	344
1685 II. 712		13 43 33.8	49 35 14	No description	156
		34.8	35 47	pB; S; 1E; s b M; 15"	155
		39.8	34 28	F; R; p s b M; 30". Twilight and ϵ ; a very doubtful RA, and a presumed mistake of wires. If not, is a new neb.	337
1686 III. 549		13 43 33.9	86 49 28	pB; R; p s b M; 15"	143
1687 III. 929		13 43 36.8	87 3 17	A very insignificant cluster of vS scattered stars; or a S resolved neb.	144
			5 ±	The faintest thing imaginable; sky turbid. Not found till too late for the transit, and seen with difficulty.	145
1688 Nova.		13 44 18.6	86 20 1	F; irreg R	142
1689 II. 899		13 44 25.8	12 19 22	eF; R; 15"; sky perfectly clear	348
1690 II. 670		13 45 5.4	45 54 54	vF; R; p s b M; 30"	151
1691 III. 698		13 45 9.2	49 28 40	S; irreg R; has a B * 8 m, p	155
1692 II. 308		13 45 16.1	96 45 15	vF; S; R; b M. Dull and murky sky	137
1693 II. 686		13 45 29.9	50 35 42	pB; S; R; g b M; 15"	146
1694 III. 849		13 45 43.6	29 16 59	eF. Sky nearly perfect	344

No.	Synonym.	R 1830-0.	N.P.D. 1850-0.	Description and Remarks.	Sweep.
1695 II. 4247		13 45 47.1	53 40 36	p B; L; R; 40". If this be my Father's nebula, there is an error of 6' in his P.D.	74
1696 II. 713		13 46 7.3	48 48 34	p B; R; b M	156
		11.0	46 17	v F; L; a bright D * p; the first of 4	357
		14.3	49 ±	Place extremely vague	155
1697 II. 697		13 46 8.6	51 15 7	p B; L; 1 E in parallel; v g b M; 90° l	331
		8.8	14 29	v F; L; R; 1 b M; 2'	75
1698 II. 714		13 46 10.8	48 53 29	The southern of a double neb, dist 1' in meridian	156
		18.5	51 ±	p B; S; the southern of 2 nearly in meridian; the second of a group of 4. Place very loosely taken.	357
		20.3	57 ±	Place very loose, and P.D. especially so from fluctuating zero	155
1699 II. 715		13 46 10.8	48 52 29	The northern of a D neb, dist 1' in merid	156
		19.5	50 ±	F; S; the northern and smallest of 2 in merid; one of a group of 4	357
		20.3	56 ±	Place very loose, and P.D. especially so	155
1700 II. 415		13 46 13.4	53 1 12	p F; R; 30"; has a * 90" dist, 25° n f	71
		14.1	1 8	F; R; 1 b M	72
1701 III. 506		13 46 24.8	83 40 36	e F, but the sky very dull	142
		25.4	50 3	e F; E	143
		26.0	49 37	p F; L; m E; r; 80" l, 30" br	253
		26.3	49 29	F; R; has two stars n and n f	154
		27.0	49 7	F; E; g b M; by diagram it is a narrow ray, pos 75° n f to s p	155
1702 Nova.		13 46 26.3	48 49 ±	The last of a group of 4	155
		31.3	49 54	F; the last of 4. There is a * 9 m preceding the group	156
		...	47 ±	v F; L; the last of 4. P.D. very rough	357
1703 I. 6		13 47 33.1	83 54 41	p B; R; p s b M; sky not clear	142
		34.6	54 38	v B; R; p s b M; 30"	143
		36.2	54 59	B; R; p s b M; a * 8 m n f; 4' dist	427
		36.3	54 16	p B; S; R; s b M; 25"	152
1704 III. 285		13 47 59.5	94 39 36	v F; v S; R. Observed too late; place precarious	147
1705 II. 534		13 48 2 ±	84 10 ±	v F; R; p L; g b M; 50". R A not observed, but set down from working list.	143
		...	8 54	F; v L; R; v g b M; 2'	427
1706 III. 786		13 48 15.5	34 49 45	p F; S; R; g b M; 15"	347
		21.0	49 40	e F; R; s p a * 16 m; sky nearly pure	346
1707 II. 716		13 48 30.9	48 40 47	No description	357
1708 II. 843		13 48 40.3	28 28 38	No description	344
1709 III. 809		13 48 47.7	30 30 42	Not v F; S; E. I almost suspect it to be a double * 13 and 14 m involved in nebula.	345
1710 II. 889		13 48 55.2	83 4 12	p B; R; v g l b M; has a * 11 m, 5° n p	253
		59.4	3 47	F; S; 1 E; v g b M; follows a * 4 sec	154
		59.8	4 4	F; L; R; follows a * 12 m (whose dist from edge of neb = 1 radius by diagram).	251
		61.6	4 12	v F; R; has a * 11 m p, 70" dist	250

No.	Synonym.	R 1830-0.	N.P.D. 1830-0.	Description and Remarks.	Swcep.
1711	III. 125	$\begin{smallmatrix} h & m & s \\ 13 & 49 & 12.5 \\ & & 16.1 \end{smallmatrix}$	$\begin{smallmatrix} 59 & 61 & 2 \\ & & 59 & 46 \end{smallmatrix}$	pB; R; g b M; 45". No other near in the parallel, following pB; pL; R; g b M; 40". No other in the parallel before or after, for some distance.	417 342
		17.3	59 36;	Not vF; R; p s b M; 20". If this be III. 125, my Father's place is much out in R.A.	258
1712	I. 187	$\begin{smallmatrix} 13 & 49 & 25.2 \\ & & 29.5 \\ & & 29.5 \\ & & 34.1 \end{smallmatrix}$	$\begin{smallmatrix} 41 & 56 & 32 \\ & & 55 & 1 \\ & & 56 & 23 \\ & & 56 & 19 \end{smallmatrix}$	B; v m E; v s m b M. B; L; m E; s m b M to nucleus pB; m E (40° n f to s p, by diagram.); s b m to nucleus vB; m E; p s b M; 50" l, 15" br; pos = 40° 4 by microm ..	256 257 140 255
1713	Novn.	$\begin{smallmatrix} 13 & 49 & 30.1 \end{smallmatrix}$	$\begin{smallmatrix} 51 & 22 & 42 \end{smallmatrix}$	pB; lE; v g l b M.	331
1714	II. 698	$\begin{smallmatrix} 13 & 49 & 38.1 \\ & & 38.8 \\ & & 40.7 \end{smallmatrix}$	$\begin{smallmatrix} 51 & 33 & 37 \\ & & 33 & 54 \\ & & 32 & 48 \end{smallmatrix}$	pB; R; p s b M; 40" vF; S; R; r F; R	331 28 73
1715	III. 546	$\begin{smallmatrix} 13 & 49 & 45.7 \\ & & \dots \end{smallmatrix}$	$\begin{smallmatrix} 82 & 54 & 42 \\ & & 55 \pm \end{smallmatrix}$	Like a * 15 m rubbed out A nebula like a hairy star	153 250
1716	III. 547	$\begin{smallmatrix} 13 & 49 & 52.7 \\ & & \dots \end{smallmatrix}$	$\begin{smallmatrix} 82 & 49 & 32 \\ & & 50 \pm \end{smallmatrix}$	A neb like a double * obliterated; pos by diam = 55° or 60° .. Like a hairy star	153 250
1717	I. 181	$\begin{smallmatrix} 13 & 50 & 3.0 \end{smallmatrix}$	$\begin{smallmatrix} 47 & 19 & 28 \end{smallmatrix}$	Not vB; R; g b M; 40"	151
1718	Novn.	$\begin{smallmatrix} 13 & 50 & 15.4 \end{smallmatrix}$	$\begin{smallmatrix} 48 & 43 & 46 \end{smallmatrix}$	F; L; v g b M; has a * 9 m, n f, 4' dist	335
1719	I. 240	$\begin{smallmatrix} 13 & 50 & 31.0 \end{smallmatrix}$	$\begin{smallmatrix} 29 & 24 & 36 \end{smallmatrix}$	vF; sky not perfectly clear	344
1720	III. 666	$\begin{smallmatrix} 13 & 50 & 37.9 \end{smallmatrix}$	$\begin{smallmatrix} 92 & 22 & 32 \end{smallmatrix}$	F; S; R; g b M; 20"	146
1721	Novn.	$\begin{smallmatrix} 13 & 51 & 6.8 \end{smallmatrix}$	$\begin{smallmatrix} 12 & 59 & 7 \end{smallmatrix}$	A cluster of 11 stars 11 m, and 2 of 15 m	348
1722	I. 191	$\begin{smallmatrix} 13 & 51 & 17.4 \end{smallmatrix}$	$\begin{smallmatrix} 51 & 44 \pm \end{smallmatrix}$	The smaller and n p of 2 which nearly join, constituting a double nebula. The place merely estimated by diag from I. 190. vF; S; the n p of 2 very near	331 73
1723	I. 190	$\begin{smallmatrix} 13 & 51 & 20.2 \\ & & 20.4 \\ & & 22.2 \end{smallmatrix}$	$\begin{smallmatrix} 51 & 45 & 9 \\ & & 45 & 47 \\ & & 44 & 13 \end{smallmatrix}$	F; b M; E nearly in merid The larger and f of 2 which nearly join F; E; l b M; by diag. The pos of the longer axis is about 60° n p and points towards I. 191, which it almost joins.	28 331 73
1724	III. 411	$\begin{smallmatrix} 13 & 52 & 4.0 \\ & & 8.1 \end{smallmatrix}$	$\begin{smallmatrix} 54 & 24 & 17 \\ & & 23 & 22 \end{smallmatrix}$	vF; v S; p m E in parallel eF; v S	131 71
1725	III. 412	$\begin{smallmatrix} 13 & 52 & 22.0 \end{smallmatrix}$	$\begin{smallmatrix} 52 & 55 & 18 \end{smallmatrix}$	F; S; E; b M	72
1726	III. 683	$\begin{smallmatrix} 13 & 52 & 35.2 \\ & & 46.1 \end{smallmatrix}$	$\begin{smallmatrix} 50 & 59 & 13 \\ & & 59 & 12 \end{smallmatrix}$	eF; p L No descrip. RA hurriedly taken by comparison with a star in parallel and not to be depended on.	155 331
1727	III. 810	$\begin{smallmatrix} 13 & 52 & 43.6 \end{smallmatrix}$	$\begin{smallmatrix} 29 & 19 & 50 \end{smallmatrix}$	eF; e S	344
1728	II. 699	$\begin{smallmatrix} 13 & 53 & 7.4 \\ & & 8.8 \end{smallmatrix}$	$\begin{smallmatrix} 50 & 14 & 57 \\ & & 15 & 34 \end{smallmatrix}$	No description vF; S; R; b M	357 156
1729	II. 672	$\begin{smallmatrix} 13 & 53 & 45.1 \end{smallmatrix}$	$\begin{smallmatrix} 48 & 10 & 50 \end{smallmatrix}$	No description	156
1730	III. 11	$\begin{smallmatrix} 13 & 53 & 47.3 \\ & & 47.6 \\ & & 48.4 \\ & & 49.3 \end{smallmatrix}$	$\begin{smallmatrix} 81 & 8 & 4 \\ & & 9 & 7 \\ & & 8 & 7 \\ & & 8 & 27 \end{smallmatrix}$	vF; S; R; p s b M Not vF; S; R; p s b M; 12...15" F; R; g b M. Follows several stars pF; R; p s b M	154 153 251 259

No.	Synonym.	At 1830-0.	N.P.D. 1830-0.	Description and Remarks.	Sweep.
1731.	Nova.	$\begin{smallmatrix} h & m & s \\ 13 & 53 & 50.7 \end{smallmatrix}$	$\begin{smallmatrix} o & 29 & 37 \\ 81 & 29 & 37 \end{smallmatrix}$	vF; R; bM; well seen	253
1732.	III. 684	$\begin{smallmatrix} 13 & 53 & 58 \pm \end{smallmatrix}$	$\begin{smallmatrix} 50 & 0 & 31 \end{smallmatrix}$	vF; vS; R; bM; among a cl of st 10 m. RA by working list	73
1733.	Nova.	$\begin{smallmatrix} 13 & 54 & 21.1 \end{smallmatrix}$	$\begin{smallmatrix} 24 & 15 & 46 \end{smallmatrix}$	pF; pS; R; p s l b M; 20"; has a * 7.8 m; Δ RA = 37"; Δ PD = 60" $\pm$.	411
1734.	II. 309	$\begin{smallmatrix} 13 & 54 & 25.7 \end{smallmatrix}$	$\begin{smallmatrix} 95 & 9 & 52 \end{smallmatrix}$	The first of 2. Both L; F; v g b M; R; r; 3' dist; 70° n.p. The larger taken.	147
1735.	II. 310	$\begin{smallmatrix} 13 & 54 & 29.7 \end{smallmatrix}$	$\begin{smallmatrix} 95 & 12 & 41 \end{smallmatrix}$	The second and larger of 2	147
1736.	I. 230	$\begin{smallmatrix} 13 & 54 & 38.6 \\ & 43.3 & \end{smallmatrix}$	$\begin{smallmatrix} 34 & 0 & 30 \\ & 0 & 40 \end{smallmatrix}$	pB; mE; v s b M; 50" l. pB; S; p m E; p s b M	347 346
1737.	III. 653	$\begin{smallmatrix} 13 & 55 & 6.8 \\ & 8.0 & \end{smallmatrix}$	$\begin{smallmatrix} 56 & 40 & 17 \\ & 40 & 26 \end{smallmatrix}$	vF; S; E in merid F; S; R; bM; 20"	131 74
1738.	II. 827	$\begin{smallmatrix} 13 & 55 & 15.7 \end{smallmatrix}$	$\begin{smallmatrix} 29 & 49 & 50 \end{smallmatrix}$	pF; R	344
1739.	II. 416	$\begin{smallmatrix} 13 & 55 & 39.5 \end{smallmatrix}$	$\begin{smallmatrix} 54 & 24 & 48 \end{smallmatrix}$	F; S; R; bM; has a * 11 m s p 1' dist.	72
1740.	Nova.	$\begin{smallmatrix} 13 & 56 & \pm \end{smallmatrix}$	$\begin{smallmatrix} 54 & 31 & 57 \end{smallmatrix}$	Taken for II. 416, which it cannot be if the last obs be correct. vF; S.	131
1741.	II. 417	$\begin{smallmatrix} 13 & 56 & 0.7 \\ & 1.8 \\ & 3.0 \end{smallmatrix}$	$\begin{smallmatrix} 54 & 3 & 15 \\ & 2 & 39 \\ & 2 & 27 \end{smallmatrix}$	pB; R; s b M; 15" pB; R; v s m b M almost to a * B; R	337 28 71
1742.	III. 413	$\begin{smallmatrix} 13 & 56 & 7.7 \end{smallmatrix}$	$\begin{smallmatrix} 54 & 9 & 50 \end{smallmatrix}$	pF; near a * 13 m s p	337
1743.	II. 691	$\begin{smallmatrix} 13 & 56 & 21.8 \end{smallmatrix}$	$\begin{smallmatrix} 40 & 0 & 33 \end{smallmatrix}$	pB; L; v m E; p s m b M; 4' l, 20" br; a ray with a nucleus.	257
1744.	M. 101	$\begin{smallmatrix} 13 & 57 & 2.1 \end{smallmatrix}$	$\begin{smallmatrix} 34 & 48 & 40 \end{smallmatrix}$	F; vL; R; first g then v s m b M; 5'	347
1745.	III. 286	$\begin{smallmatrix} 13 & 57 & 40.2 \end{smallmatrix}$	$\begin{smallmatrix} 94 & 38 & 16 \end{smallmatrix}$	vF; vL; R; g b M	147
1746.	VI. 9	$\begin{smallmatrix} 13 & 57 & 46.4 \\ & 49.0 \end{smallmatrix}$	$\begin{smallmatrix} 60 & 39 & 44 \\ & 39 & 16 \end{smallmatrix}$	aL, v rich cl; 8'....10' diam; stars 12....18 m; roundish figure. Fine L cl; stars 14 m downwards to a nebulous appearance; 6'....8' diam. It will bear no illumination.	417 65
				Viewed; a fine L cl 7 or 8'; v g b M, but no nucleus. The stars 11 or 12 m down to an irresolvable mass; irreg R; excessively compressed. A fine object. Barely discernible in the 20 foot finder ($2\frac{1}{2}'$ in aperture).	357
1747.	III. 947	$\begin{smallmatrix} 13 & 57 & 51.1 \end{smallmatrix}$	$\begin{smallmatrix} 10 & 57 & 7 \end{smallmatrix}$	eF; pL; R; v g v l b M; 35". RA precarious, owing to a great extra meridian correction.	348
1748.	I. 231	$\begin{smallmatrix} 13 & 58 & 47.8 \end{smallmatrix}$	$\begin{smallmatrix} 34 & 17 & 10 \end{smallmatrix}$	pF; R; S; g b M; sky not quite clear	346
1749.	Nova.	$\begin{smallmatrix} 13 & 59 & 4.8 \end{smallmatrix}$	$\begin{smallmatrix} 83 & 8 & 47 \end{smallmatrix}$	F; mE; v g l b M	250
1750.	II. 800	$\begin{smallmatrix} 13 & 59 & 18.9 \end{smallmatrix}$	$\begin{smallmatrix} 33 & 26 & 45 \end{smallmatrix}$	pB; S; p m E; bM; 18" l, 12" br	347
1751.	III. 287	$\begin{smallmatrix} 13 & 59 & 21 \pm \end{smallmatrix}$	$\begin{smallmatrix} 95 & 17 & \pm \end{smallmatrix}$	F; pL; R. RA by working list. P D roughly taken, past merid	147
1752.	II. 32	$\begin{smallmatrix} 14 & 1 & 52.0 \end{smallmatrix}$	$\begin{smallmatrix} 71 & 38 & 26 \end{smallmatrix}$	pB; vS; has a vF double * in centre among several stars 12 m; a doubtful object.	334
			$\begin{smallmatrix} 39 & \pm \\ 39 & \pm \end{smallmatrix}$	vF; S; R; s b M	61
1753.	II. 890	$\begin{smallmatrix} 14 & 2 & 29.3 \\ & 30.0 \\ & 30.7 \end{smallmatrix}$	$\begin{smallmatrix} 82 & 40 & 40 \\ & 49 & 37 \\ & 49 & 31 \end{smallmatrix}$	pF; pL; g b M; 25" pF; S; R	154 253
			$\begin{smallmatrix} 62 & \pm \end{smallmatrix}$	No description	250
				pB; bM; r. Viewed much past merid, and P D extremely vague.	153

No.	Synonym.	R 1830-0.	N.P.D. 1830-0.	Description and Remarks.	Sweep.
1754	II. 876	14 2 37.3	69 35 11	pB; vS; E	61
		...	36 ±	PD taken past meridian	334
1755	IV. 46	14 2 38.4	94 14 16	pB; R; p s m b M; 15"; seems to have * 18 m involved n p.	147
1756	Nova.	14 3 41.8	87 56 32	a v F neb or a v S cluster of e S at	144
1757	II. 687	14 4 25.9	92 24 12	vF; L; 1E; g b M	146
1758	IV. 49	14 4 32.7	92 20 57	F; S; R; b M	146
1759	II. 877	14 5 12.4	68 46 10	pB; R	409
1760	III. 685	14 5 36.6	49 53 20	F; S; 1E; 15"	73
		36.8	53 5	No description	337
		37.0	53 44	F; irreg fig; seems to have a * in it	153
1761	Nova.	14 6 50.4	84 47 36	F; S; R; b M; 15"	143
1762	III. 134	14 7 5.9	63 53 17	cF; pL; a * 10 m 150" dist n p	261
		8.7	53 10	pB; pL; mE; 2' 1, 30" br	425
		13 ±	53 55 ±	pB; mE; 60" 1, 20" br; a * 10 m p	350
1763	III. 804	14 8 20.5	31 25 57	cF. Moon rising, but no doubt	345
1764	III. 414	14 8 24.1	52 59 7	pF; v m E; a long narrow ray pos = 110° 3 by microm; v g v 1 b M; 90" 1, 12" br.	331
1765	III. 47	14 8 34.3	78 23 52	F; R; g b M	4
1766	II. 418	14 8 53.4	53 52 40	pB; R; p s b M	337
		53.8	49 59	R; v s m b M to 2 or 3 stars	28
		54.3	51 37	No description. (An extraordinary disagreement in P D, yet none of the observations is marked as defective.)	71
1767	Nova.	14 9 14.7	81 1 47	F; irreg fig; pL; g b M; r	253
1768	III. 731	14 9 26.4	49 43 9	F; R; the p of 2, or perhaps of 3	156
1769	III. 732	14 9 34.1	49 36 56	pF; S; R; g b M; 10"	337
		34.3	37 9	pB; R; perhaps a third neb near.	156
		35.5	37 15	F; S; R; 15"	73
		...	37 45::	vF; vS; R; sky perfectly clear	155
1770	III. 551	14 9 44.5	81 38 30	pB; R; b M; 20"	154
		45.2	38 33	pB; R; g b M; 20"	250
1771	II. 419	14 9 52.4	52 38 15	E	69
		53.3	37 38	F; S; a double nebula or two which run together pos 10° n f by diagram.	72
		...	38 57	F; E	71
1772	III. 552	14 10 14.5	81 50 17	F; R; b M; 20"; only one seen with much attention. Sky perfectly clear.	153
1773	II. 194	14 10 16.0	64 4 10	vF; pL; R; v s v m b M, to a * 12 m, for which it is easily taken.	261
		17.1	4 20	B; v s v m b M; like a * with feeble atmosphere	425
1774	Nova.	14 10 16.9	76 19 29	vF; p m E; 30" 1, 15" br. Just comes into the field with 18 h. otis.	538
1775	Nova.	14 10 51.9::	62 56 27::	vF; 1E; 15"	359

No.	Synonym.	AR 1830-0.	N.P.D. 1830-0.	Description and Remarks.	Sweep.
1776	I. 99	^{h m s} 14 11 17.0 17.0	^{52 42 34} 43 5	B; R; v s m b M to a *; v F at the borders v B; R; m b M	26 69
1777	III. 347	14 11 29.1	64 24 20	v F; R; b M	425
1778	II. 579	14 11 29.5 31.7	85 12 41 13 9	p B; p L; 1 E; g b M. v F; L; g l b M; 90"	142 427
1779	I. 144	14 11 45.3 46.0 47.0	85 17 7 16 31 16 39	B; R; 40"; g b M; r; has a * 12 m 1 diam of neb (by diagram) dist. n f. v B; p L; R; s b M B; R; p s b M; 18"	426 142 427
1780	Nova.	14 12 4.6	54 5 35	p F; R	337
1781	III. 12	14 12 14 ± ...	81 42 ± 42 ±	Not v F; S; R; b M. (R A by working list.) Seen; as also III. 551 in the same parallel, but considerably dist in R A.	153 231
1782	I. 145	14 12 21.4	85 58 33	F; S; 1 E	143
1783	I. 146	14 12 30.4	85 56 48	v B; R; v s m b M; a star 11 m n p and the neb I. 145 s p make a right-angled triangle with I. 146 at the right angle.	143
1784	III. 415	14 13 14.1 16.7	54 1 47 1 8	e F; L; 30 or 40" F; p L; the preceding of 2	331 72
1785	Nova.	14 13 29.3	54 0 33	Not v F; 20"; the following of 2	72
1786	II. 754	14 13 48.2 49.0 49.4 ...	49 30 51 31 23 31 14 33 ±	B; R; p s m b M; 20" F; R; b M. p B; S; R; s b M; 10" p B; R; g b M; 30"; has a * 11 m 50° s p, dist 50". No R A procured, and P D only rough.	357 155 156 73
1787	III. 110	14 14 3.9	75 18 20	v F; R; g b M. Is n p a * 8 m 6' dist.	338
1788	III. 416	14 14 14.5 15.2	53 57 14 56 37	The n p of 2. Pos with the other = 330° 0 by micrometer. v F; S; R	337 71
1789	Nova.	14 14 14.7	54 5 39	e F	28
1790	I. 235	14 14 20.8	32 29 47	v F; v L; R; v g b M; diam 2' at least; ☿ and haze.	345
1791	III. 417	14 14 26.0 27.7 28.2	54 1 20 0 39 0 57	p B; R; p s b M; 15"; the s f of 2; ☿ v F; a stellar nucleus. p F; R; 20"	337 26 71
1792	III. 121	14 14 53.8 ...	105 56 58 56 43	F; v L; R; v g b M; 2' diam F; L; R; v g l b M; 60 or 80" diam; the first of 2; Δ R A = 15°.	334 157
1793	III. 122	14 15 7.8 ...	105 59 13 59 23	v F; L; 1 E; v g l b M; 90" v F; L; R; the second of 2; 60 or 80" diam; Δ R A = 15°.	354 157
1794	III. 927	14 15 23.8 24.3 24.7 25.6	82 38 32 38 31 38 55 38 17	v F; E; g b M v F; R; b M; 12" p F; S; R No description	253 154 250 153
1795	III. 418	14 15 26.6	52 6 7	e F; S; R; (unless R A = 14° 15' 36" G)	321

No.	Synonym.	R 1890-0.	N.P.D. 1890-0.	Description and Remarks.	Sweep.
1796	III. 733	h m s 14 15 32.3 37.1	48 51 16.1 54 14	The places of this sweep are bad	135
1797	II. 177	14 15 41.8	74 35 7	F; R; bM; 12...15"	136
1798	III. 120	14 15 53.6	102 24 12	pB; R; g b M; 40"	24
1799	III. 688	14 15 54.9	92 25 57	vF	351
1800	III. 734	14 16 11.0 13.1	48 51 14.1 49 44	F; pL; v g b M to a stellar point.	146
1801	III. 673	14 16 36.7	47 26 58	pB; R; bM; 15"	156
1802	III. 136	14 16 42.2 ...	64 37 5 37 35	vF; R; g b M; 12"	357
1803	Nova.	14 16 49.3	56 10 46	F; R; pL; v g b M; 80". Sky very fine	151
1804	II. 420	14 16 54.2 58.8	54 21 47.1 21 38	pF; p m E; g b M; 30"; a * 9 m follows 20° in the parallel.	425
1805	III. 419	14 17 16.4	52 45 52	vF; R; p g b M; 20"	261
1806	Nova.	14 18 45.9	54 25 43	F; S; R; v s m b M	74
1807	III. 14	14 19 26.2	50 59 16	pB; R; 30"	71
1808	II. 329	14 19 55.9	55 59 1	pB; R; s b M; 30"	72
1809	III. 677	14 19 58.6	40 40 37	vF; S; lE; v g b M	331
1810	Nova.	14 20 13.4	49 16 48	vF; R; v g b M; 25"	143
1811	Nova.	14 20 20.4	77 51 2	The faintest possible	250
1812	Nova.	14 20 37.4	63 23 30	F; S; R; v s m b M; 15...20"; almost stellar.	74
1813	I. 70	14 20 40.5	95 12 19	vF; pL; R; v g l b M; 30"	257
1814	II. 674?	14 20 52.0 52.5 53.5 54.0	47 58 14 58 38 58 57 58 58	vF; S; R; g b M; 20"	73
1815	III. 132	14 21 1.1	61 49 51	vF; R; 15"; about 3' f, and 40" n of a * 9 m	338
1816	II. 560	14 21 4.0	85 57 51	pF; R; g b M; 20". Precedes Piazzi xiv. 97	330
1817	II. 581	14 21 6.0 6.4	85 59 51 60 23	pF; R; has a * 7 m f	425
1818	I. 185	14 21 6.6 7.1	43 4 49 5 22	A fine small compressed globular cluster. I can barely discern the stars; they are 19 m 80" diam; has a * 7.8 m 90" dist, pos 30° s f, and another 10 m, n p.	147
1819	II. 357	14 21 11.0 16.8	66 3 0 2 55	No description	156
1820	I. 236	14 21 14.1 14.3	32 39 37 39 40	F; E in parallel; 45" l, 30" br	151
1821	Nova.	14 21 23.3	56 50 12	eF; S; R; sky perfectly clear	150
1822	III. 126	14 21 51.0 55.4	59 12 57 14 1	F; pL; g b M; 35"	155
				pB; S; E; s b M	142
				eF; R; the n p of 2	142
				vB; R; p s b M; 15...20"	142
				pB; R; p s b M; 15...20"	143
				B; R; v g l b M; 40"	255
				Not vF; R; v g v l b M; 20"	256
				eF; vS; R	425
				eF; R; v g b M; 15"	261
				B; R; p s b M; 30"	345
				B; R; p s b M; 25"	347
				vF; R; n of a * 11 m; a * 7.8 m precedes	258
				pB; vS; close to and n p a * 12 m; pos from * = 333° 5 by microm	342
				F; S; has a * in it and a B * foll it	65

No.	Synonym.	R 1830.0.	N.P.D. 1830.0.	Description and Remarks.	Sweep.
1823	II. 150	^{h m s} 14 22 14.4 15.4	^{° ' "} 81. 57 53 57. 49	v F; L; R; 60"	152
1824	III. 645	14 22 28.1	75 14 13	p B; R; g b M. Wind very troublesome	251
1825	II. 891	14 22 33.9 35.2	83 15 27 15 54	The faintest perceivable; the first and northern of 2	338
1826	II. 330	14 22 50.3	58 1 38	p B; p L; R; b M	253
1827	Nova.	14 22 51.5	75 19 52	F; S; R; b M; 25"	153
1828	III. 420	14 23 0.6	52 52 42	The s f of 2; the faintest perceivable	74
1829	II. 421	14 23 18.5	53 55 20	p F; nucleus elongated, or has a F double * in it. Pos = 115° 5' ± (microm). (II. 421, not III. 421.) p B; R; p s b M; 20"; a * 9 m follows 18° 5' nearly in parallel, and a * 14 m, pos 155° 0' from neb, dist 50".	338 331
		18.9	55 0	B; R; m b M; a star near or in it	337
		21.2	54 9	F; R; r	69
		...	55 12	Seen. No description. Working list much out in P D	28
1830	II. 892	14 23 30.4 30.8	82 59 57 59 5	v F; p L; irr fig. v F (growing hazy)	71 250
1831	III. 289	14 23 32.1	63 51 5	e F. Place extremely precarious	154
		...	...	Viewed; v F; R; v g b M. In or near its place per working list.	261
1832	II. 695	14 23 49.6	39 37 45	p F; v L; R; v g b M; 2'; r; stars = 20 m	425
1833	II. 27	14 24 3.0 3.1	81 10 27 9 57	p B; R; g b M; 30"	257
1834	Nova.	14 24 52.2	78 43 32	p B; L; g b M; 90"	153
1835	Nova.	14 24 52.8 52.9	84 47 46 48 0	v F; R; 10". Stellar; hardly distinguishable from a star	253
1836	III. 310	14 25 22.7	57 34 41	v F; p L; R; has a * 15 m, n f, involved or very near	4
		...	36 ±	F; p L; R; has * 13 m, n f involved	142
1837	II. 893	14 25 23.2 23.8	83 47 2 47 7	v F; R; l b M	143
		24.0	46 59	Viewed. It is pointed to by a D * preceding	74
		24.8	46 55	F; R; g b M	258
1838	II. 696	14 25 39.1	39 18 13	p B; p L; g b M	253
1839	II. 422	14 25 39.5	52 56 35	v F; R; b M; 20"	250
1840	III. 289	14 26 34.9	63 46 57	v F; R; b M; growing hazy	251
1841	II. 894	14 26 37.1 41.0	83 52 39 53 17	v F; R; b M; 20"	251
		...	53 7	v F; R; b M; growing hazy	154
		...	53 17	v F; p m E; s f a star 15 m	257
		...	55 33	F; S; E; b M	72
		...	...	F; R; r; has 3 stars 9.10 m n p	330
		...	...	e F. Third class. Windy, but sky very clear	251
		...	...	Just following a *. Cloud renders the observation doubtful. (N.B. The obs makes the P D 81°, but it is pretty evident that there is a mistake of 2° in reading the index, and that this belongs to II. 894.)	153
		...	...	v F; b M; some doubt if it be a nebula	253
		...	...	Among stars and seems attached to a * 12 m like a wisp	250
		...	...	e F; S; R. Taken beyond meridian, and probably a hurried observation.	143

OF NEBULÆ AND CLUSTERS OF STARS.

453

No.	Synonym.	A 1830-0.	N.P.D. 1830-0.	Description and Remarks.	Sweep.
1842	I. 189	^h 14 26 48.0	^m 39 47 15	B; L; E; r; p g m b M	257
1843	I. 237	14 26 58.5	31 19 44	B; L in merid; g m b M; 50"	345
		71.11	21 13	B; L; R; v g b M; 40". Noted in the MS. as a hasty observation, and with a doubtful R.A. caught in quitting the field.	225
1844	III. 421	14 28 51.5	52 42 48	F; S; R; b M	72
		52.6	41 59	F; R or 1 E	28
		53.1	44 2	p B; R. The preceding of 2	331
		54.6	43 17	v F; E	71
1845	Nova.	14 29 5.1	52 45 12	v F; S; R	331
		5.5	45 3	v F; v S. The following of 2	72
1846	III. 582	14 29 8.7	86 57 51	c F; E; about 10° following a * 7 m	142
		...	58 12	F; seems to be a double nebula (pos by diagram = 140° ±) foll a * 6 m.	426
		...	58 34	a v F ray 60" l; follows a * 7 m dist 5'	427
1847	II. 681	14 29 10.4	89 38 52	p B; g b M; 1 E	144
1848	I. 188	14 29 26.2	40 30 48	B; S; p m E; p s b M; pos nearly in the parallel	257
1849	II. 808	14 29 29.7	34 46 0	F; irreg fig; r; has * 10 m, 2' s f.	347
1850	II. 648	14 29 59.7	47 28 7	F; R; r. R.A. by working list	150
1851	II. 423	14 30 23.9	52 41 25	p B; S; b M	69
		25.4	41 38	p B; R; b M	72
		...	41 57	p F; R	71
1852	II. 700	14 30 26.4	50 47 56	F; S; irreg fig; b M	73
		27.2	47 49	No description	156
		...	48 27	F; p L; 1 E; 40" l; in a scalene triangle of stars 10.11 m.	331
1853	II. 676	14 30 29.7	47 38 ±	v F; R; b M; follows an arc of 4 B at	151
1854	II. 575	14 30 41.9	83 53 51	B; R; p s b M; 30"	143
		43.0	53 27	p B; S; R; g b M; 25"	253
		43.8	53 32	p B; p s b M; 30"	152
		44.3	53 13	B; p S; R; b M; has * 11 m 15" prec	154
1855	II. 649	14 31 16.1	48 44 41	F; S; R	155
		36.4	47 33	v F; p L; R; scarcely visible, for C. (N.B. The great difference of R.A. from that of the 155th sweep is probably owing to mistaking the moveable micrometer wire for the fixed wire of the eye-piece.—The P.D. of this obs is also evidently faulty.)	357
1856	III. 895	14 31 27.4	69 13 11	e F; S; v g b M; the p of 2; a double * between	334
1857	I. 182	14 31 27.9	89 32 52	B; R; p s b M; r; 20"	144
1858	Nova.	14 31 32.9	69 17 1	e F; v S; the f of 2, close to a D *	334
1859	Nova.	14 31 34.8	48 49 14	No description	156
		36.6	48 42	F; p L; E nearly in merid; g b M	155
1860	III. 671	14 31 38.8	106 44 29	e F; L; R; 60"	354
		39.5	43 53	v F; p L; very ill defined	157

No.	Synonym.	At 1850°0.	N.P.D. 1830°0.	Description and Remarks.	Sweep.
1861	Nova.	$\begin{smallmatrix} h & m & s \\ 14 & 31 & 57.5 \end{smallmatrix}$	$\begin{smallmatrix} \alpha & \delta & \mu \\ 42 & 30 & 33 \end{smallmatrix}$	v F; E; 40"1; S of a coarse D *; the preceding of 2	255
1862	III. 550	$\begin{smallmatrix} 14 & 32 & 9.2 \\ & & \dots \end{smallmatrix}$	$\begin{smallmatrix} 85 & 48 & 33 \\ & 47 & 52 \end{smallmatrix}$	v F; l; v g l b M; has a * 9 m 45° n f.	143
1863	II. 682	$\begin{smallmatrix} 14 & 32 & 12.8 \end{smallmatrix}$	$\begin{smallmatrix} 89 & 34 & 35 \end{smallmatrix}$	v F; s p a * 8 m, 1½ diam from edge of nebula.	426
1864	III. 675	$\begin{smallmatrix} 14 & 32 & 20.4 \end{smallmatrix}$	$\begin{smallmatrix} 42 & 35 & \pm \end{smallmatrix}$	p B; S; l E; b M	144
		$\begin{smallmatrix} 27.5 \end{smallmatrix}$	$\begin{smallmatrix} 34 & 39 \end{smallmatrix}$	The second of 3 in a line (two R; one m E) south of a double *. PD from Sw 255.	256
1865	Nova.	$\begin{smallmatrix} 14 & 32 & 44.5 \end{smallmatrix}$	$\begin{smallmatrix} 42 & 33 & 9 \end{smallmatrix}$	Not e F; R; p s b M; 20"; the second of 3	255
1866	I. 184	$\begin{smallmatrix} 14 & 32 & 58.3 \end{smallmatrix}$	$\begin{smallmatrix} 106 & 31 & 5 \end{smallmatrix}$	v F; R; p s b M; 15"; the third of 3 in a line	255
		$\begin{smallmatrix} 58.3 \end{smallmatrix}$	$\begin{smallmatrix} 30 & 26 \end{smallmatrix}$	F; R; p g b M; 20"; has a * 15 m n f; certainly not of first and hardly of second class. Sky perfectly clear.	354
1867	III. 657	$\begin{smallmatrix} 14 & 33 & 33.5 \end{smallmatrix}$	$\begin{smallmatrix} 46 & 28 & 23 \end{smallmatrix}$	p B; m E; b M, almost to nucleus; has a * 10 m 90° s	157
1868	III. 658	$\begin{smallmatrix} 14 & 33 & 43.5 \end{smallmatrix}$	$\begin{smallmatrix} 46 & 29 & 53 \end{smallmatrix}$	e F; p L; E; seen only with great attention. Place estimated from III. 658.	151
1869	III. 686	$\begin{smallmatrix} 14 & 33 & 48.4 \end{smallmatrix}$	$\begin{smallmatrix} 50 & 37 & 14 \end{smallmatrix}$	v F; S; R	131
		$\begin{smallmatrix} 54.1 \end{smallmatrix}$	$\begin{smallmatrix} 37 & 36 \end{smallmatrix}$	No description	156
1870	III. 133?	$\begin{smallmatrix} 14 & 35 & 11.2 \end{smallmatrix}$	$\begin{smallmatrix} 60 & 33 & 1 \end{smallmatrix}$	v F; S; R; b M	73
1871	III. 696	$\begin{smallmatrix} 14 & 35 & 19.6 \end{smallmatrix}$	$\begin{smallmatrix} 70 & 23 & 21 \end{smallmatrix}$	v F; L; R	65
1872	II. 538	$\begin{smallmatrix} 14 & 35 & 46.4 \end{smallmatrix}$	$\begin{smallmatrix} 87 & 35 & 32 \end{smallmatrix}$	v F; p S; R; g l b M	334
1873	I. 171	$\begin{smallmatrix} 14 & 36 & 3.7 \end{smallmatrix}$	$\begin{smallmatrix} 47 & 26 & 42 \end{smallmatrix}$	L; irreg R; g b M; r	144
1874	I. 126	$\begin{smallmatrix} 14 & 36 & 17.6 \end{smallmatrix}$	$\begin{smallmatrix} 87 & 19 & 17 \end{smallmatrix}$	p B; R; s b M; several small stars near	150
1875	I. 183	$\begin{smallmatrix} 14 & 37 & 37 \pm \end{smallmatrix}$	$\begin{smallmatrix} 89 & 31 & \pm \end{smallmatrix}$	A long p B ray with a p B nucleus; 3' long	144
1876	III. 690	$\begin{smallmatrix} 14 & 38 & 13.3 \end{smallmatrix}$	$\begin{smallmatrix} 108 & 22 & 6 \end{smallmatrix}$	F; R; g b M; r; 30"; is not entitled to be called first class. Sky perfectly clear.	144
1877	II. 809	$\begin{smallmatrix} 14 & 38 & 27.5 \end{smallmatrix}$	$\begin{smallmatrix} 35 & 51 & 25 \end{smallmatrix}$	F; S; R; b M	355
1878	III. 687	$\begin{smallmatrix} 14 & 38 & 35.4 \end{smallmatrix}$	$\begin{smallmatrix} 50 & 32 & 57 \end{smallmatrix}$	v F; R forms an obtuse-angled isosceles triangle with 2 = stars 10.11 m, one p, one s f; dist of each 3'.	347
		$\begin{smallmatrix} 36.7 \end{smallmatrix}$	$\begin{smallmatrix} 32 & 58 \end{smallmatrix}$	e F; just visible. ☾	357
		$\begin{smallmatrix} 37.5 \end{smallmatrix}$	$\begin{smallmatrix} 32 & 5 \end{smallmatrix}$	p B; R; p s b M; 15"	155
1879	III. 685	$\begin{smallmatrix} 14 & 39 & 50.0 \end{smallmatrix}$	$\begin{smallmatrix} 70 & 46 & 56 \end{smallmatrix}$	F; S; R; g b M; 20"	73
1880	Nova.	$\begin{smallmatrix} 14 & 42 & 22.7 \end{smallmatrix}$	$\begin{smallmatrix} 84 & 10 & 27 \end{smallmatrix}$	v F; l E in parallel; v g l b M	334
1881	II. 576	$\begin{smallmatrix} 14 & 44 & 43.2 \end{smallmatrix}$	$\begin{smallmatrix} 85 & 20 & 21 \end{smallmatrix}$	v F; a double nebula, both individuals e F	253
		$\begin{smallmatrix} \dots \end{smallmatrix}$	$\begin{smallmatrix} 19 & 46 \end{smallmatrix}$	p B; R; s b M; 25"	143
		$\begin{smallmatrix} \dots \end{smallmatrix}$	$\begin{smallmatrix} 20 & 14 \end{smallmatrix}$	No description. R A lost	142
1882	III. 129	$\begin{smallmatrix} 14 & 45 & 0.3 \end{smallmatrix}$	$\begin{smallmatrix} 59 & 27 & 35 \end{smallmatrix}$	F; S; R; g b M; 15"	427
1883	Nova.	$\begin{smallmatrix} 14 & 45 & 7.2 \end{smallmatrix}$	$\begin{smallmatrix} 48 & 42 & 4 \end{smallmatrix}$	v F; S; R; p g b M; 15"	256
		$\begin{smallmatrix} 7.9 \end{smallmatrix}$	$\begin{smallmatrix} 42 & 14 \end{smallmatrix}$	B; R; s b M; 15"	156
		$\begin{smallmatrix} 10.7 \end{smallmatrix}$	$\begin{smallmatrix} 40 & 42 \end{smallmatrix}$	p B; p L; R; g b M; 20"; a * 8 m, n p	153
1884	III. 130	$\begin{smallmatrix} 14 & 45 & 17.8 \end{smallmatrix}$	$\begin{smallmatrix} 59 & 30 & 25 \end{smallmatrix}$	p F; l E; p s l b M; 20"	357
1885	III. 554	$\begin{smallmatrix} 14 & 45 & 26.6 \end{smallmatrix}$	$\begin{smallmatrix} 85 & 46 & 18 \end{smallmatrix}$	v F; R; p g b M; 20"	258
		$\begin{smallmatrix} \dots \end{smallmatrix}$	$\begin{smallmatrix} 45 & 4 \end{smallmatrix}$	Not v F; g l b M; a narrow ray, 90"1, 15" br	143
		$\begin{smallmatrix} \dots \end{smallmatrix}$	$\begin{smallmatrix} 45 & 37 \end{smallmatrix}$	Not v F; m E; pos = 140° 0 ±; 90"1.	427
		$\begin{smallmatrix} \dots \end{smallmatrix}$	$\begin{smallmatrix} 45 & 37 \end{smallmatrix}$	v F; v m E; a ray, pos = 148° 4 by microm; 90"1.	426

No.	Synonym.	R 1850-0.	N.P.D. 1850-0.	Description and Remarks.	Sweep.
1886	Nova.	14 47 11.9	106 32 41	F; S; R; b M; has a * 16 m s p near	354
1887	II. 676	14 47 58.5 59.2	46 45 22 45 8	S; R; almost stellar; s b M; 15"	150
				p B; R; s m b M; 20"	151
1888	II. 677	14 48 55.6	46 48 42	S; R; p s b M; 12"; like a burred star	150
1889	III. 691	14 49 10.2	108 35 7	p F; R; b M; 20"	355
1890	III. 976	14 49 25.1	59 5 34	c F; p L; 40 50"	65
1891	Nova.	14 50 22.1	39 37 22	p F; S; v s b m, to a * 13 m; the first of 3 in a line. A star 6.7 m near.	257
1892	III. 131	14 50 32.3	59 21 8	v F; R; v g l b M; 20"; has a * n f	258
		...	20 48	c F	65
1893	III. 679	14 50 47.1	39 37 36	p F; S; v s b M to a * 13 m; the second of 3 in a line. A star 6.7 m near.	257
1894	II. 539	14 51 22.9	87 25 32	B; s b M to nucleus; E pos 75° n p	144
1895	III. 678	14 51 31.9	39 38 1	p F; S; v s b M to a * 13 m. The third of 3 in a line; a * 6.7 m near.	257
1896	I. 127	14 52 34.3	87 37 2	B; R; p s b M; 40"	144
1897	Nova.	14 52 44.3	87 42 32	v F; v S; R	144
1898	II. 756	14 53 36.5	35 24 50	B; R; s b M; precedes a splendid D *	347
1899	II. 539	14 55 40±	88 7 32	No description. R A by working list	144
1900	Nova?	14 55 56.6	122 27 28	A very strongly suspected nebula; but I cannot be quite sure (from the low situation) it is not a star.	353
1901	I. 128	14 57 52.4	87 43 37	B; R; p s b M to nucleus; 30"	144
1902	II. 543	14 58 31.4	87 47 44	p F; S; l E; p s b M	144
1903	II. 544	14 59 12.2	86 46 12	p B; R; p s l b M; among many stars	426
		13.7	46 19	p B; S; R; g l b M; 12"; among stars	427
		14.4	46 23	B; S; l E; p g b M	143
1904	IV. 71	14 59 52±	70 53 59.1	A star of fully 6 m, with a supposed nebulous appearance about it, but of whose reality I cannot satisfy myself, as it "blinks" with the star behind the wire.	334
1905	II. 751 } II. 752 }	15 0 0±	69 48 ±	A double nebula; pos of the individuals, centre from centre, 20° n p; 2' dist. Both E; R A from working list; rough P.D. (See fig 77.)	61
1906	Nova.	15 0 23.3	46 42 17	F; R; g b M; 20"	150
		24.4	46 43 21	Not v F; S; R; p s b M; 15"	151
1907	II. 585	15 0 58.3	86 17 12	p B; p L; R; g b M	426
		60.7	17 19	p B; irreg R; g b M; 30"	427
		62.2	17 33	p B; S; E; has a * 14 m closely f	143
1908	II. 545	15 1 9.3	88 52 27	p B; S; E; p s b M	144
1909	I. 219	15 1 47.1	33 34 40	v B; p m E; g b M; 50" l, 20" br; pos 326°-0 by microm...	347
1910	II. 757	15 5 23.0	32 20 38	B; irr R with ray-like appendages; g b M; r; 30"	225
1911	Nova.	15 6 32.4	48 8 9	F; R; b M; 12"	156
1912	II. 659	15 6 52.7	48 6 8	p B; R; b M; 15"; the P.D. differs 5' from my Father's.	156
1913	II. 678	15 7 24.5	47 24 27	F; R; g b M; 30"	150

No.	Synonym.	N.P.D. 1850-0.	AR 1830-0.	Description and Remarks.	Sweep
1914	II. 650	15 8 55.4 55.8	47 19 58 19 22	pB; p m E; p s b M v B; p L; p m E; g b M; r	151
1915	III. 660	15 8 55.8 60.3	47 10 ± 10 8	F; R; g b M v F; l E; b M; small	150 150 151
1916	M. 5	15 9 56.4	57 16 27	A most magnificent, excessively compressed cluster of a globular character. Stars 11...15 m; diam in RA = 10 sec of time; the more condensed part projected on a loose irregular ground of stars. The condensation is progressive up to the centre, where the stars run together into a blaze, or like a snowball; the scattered stars occupy nearly the whole field. The neighbourhood is poor in stars. (See fig 87.)	144
1917	II. 759	15 11 24.0 26.2	33 4 28 2 20	p B; g b M; a ray C' or S' long at least; pos = 155° 0 by microm B; a superb ray nebula, at least 7½' long, and narrow; pos = 159° 9 by meas, at first v g b, then p s m b M.	225 347
1918	III. 374	15 12 5.4	91 57 22	v F; R; b M	146
1919	I. 148	15 13 28.9 29.6 30.7 33.3	84 19 13 18 12 19 37 18 56	B; R; p s b M; diffused at borders; many stars near. p B; E; p s b M; 90" l, 40" br; among many stars 11, 12, 13 m B; R; v s b M to a * 12 m; among stars p B; ill defined, roundish fig; g b M; among several stars	143 253 427 152
1920	Nova.	15 13 35.4 36.8	43 29 44 30 29	p B; p m E; v g l b M; 60" l, 40" br v F; L; m E; v l b M; n of a D *	255 256
1921	Nova.	15 15 7.5 7.8 8.3 10.3	47 39 42 39 19 40 39 40 8	v F; R; v g b M; 40" No description e F; L; R; 60" F; p L; l E; v g b M	150 156 357 151
1922	III. 661	15 15 43 ±	47 44 ±	No descr. RA by working list; P D rough	151
1923	III. 874	15 18 18.9	71 19 7	p B; S; R; p s b M; a * 7.8 m, 6' n	334
1924	II. 651.1	15 20 1.5	47 44 4	The s p of 2 very near constituting a double neb. The fainter and smaller.	156
1925	II. 651.2	15 20 2.5 3.5 5.6 6.4	47 43 59 43 57 43 28 44 3	The n f, larger and brighter of the double neb. Pos of the other 33° s p, dist about 15". Not described as double by my Father. p B; b M; R; has a * eccentric Not v F; S; bicentral; pos 45° s p ± F; R; b M; 30"	156 150 357 151
1926	II. 401	15 21 55.4	92 14 25	p B; irreg fig; v g b M; 40"	246
1927	II. 178 } II. 179 }	15 26 38.9	74 14 42	A fine S double nebula; the individuals are F; R; s b M; r; dist = 1'. Both alike.	24
1928	II. 96	15 28 44.4	72 49 32	F; l E; g b M	27
1929	Nova.	15 29 9.4	83 27 7	v F; v L; R; v g b M; r; diam = 9' of time. With long attention it is seen to be composed of excessively minute stars like points rubbed out; and is in fact a globular cluster, but to see it thus requires long and perfect tranquillity of the eye. A very interesting object. (See fig 89.)	253
1930	III. 634	15 29 41.7 44.6	49 39 52 40 25	F; S; R; g b M; 12"; 2 very L stars follow e F; S; R; two * s s m, n f, dist 5'	357 78

OF NEBULE AND CLUSTERS OF STARS.

457

No.	Synonym.	R 1830-0.	N.P.D. 1830-0.	Description and Remarks.	Swarp.
1931	II. 762	h m s 15 30 9±	32 44 53	F; L; R; 40"; taken much past merid and PD only rough. RA per working list.	225
1932	Nova.	15 32 13.6	57 40 33	vF; S; R; bM; 12"	74
1933	II. 655	15 33 37.5	73 39 42	vF; R	24
1934	II. 764	15 35 42.2	30 6 3	B; R; p s b M; r; 25"	225
1935	II. 425	15 37 43.6	87 2 54	vF; vS; R; 10"	427
		48.0	3 27	F; R; g b M; 20"	144
1936	III. 635	15 38 25.3	46 21 6	F; R; b M.	133
		28.3	20 44	No description	156
1937	III. 636	15 38 29.9	48 20 21	pB; R; b M.	155
1938	II. 97	15 39 17.6	71 34 49	pB; R; p s b M; 20"	334
		19.3	34 34	pF; R; g b M; 30"; between two coarse double stars	262
1939	II. 583	15 45 39.4	88 56 27	pB; S; 1 E in parallel; g b M	144
1940	Nova.	15 47 35.3	83 34 7	pB; pL; E; 30" l, 18" br	233
1941	Nova.	15 48 47.2	83 29 57	S; R; nearly stellar; but about 10" at the centre has nearly a uniform light, and a burr surrounds it.	233
		55.2	30 44	pF; vS; R; much condensed in the centre. A disc with a burred border. Almost a planetary neb.	133
1942	III. 646	15 49 43.2	73 37 22	eF; vS	27
1943	III. 73	15 49 46.2	73 32 22	eF; vS; in the same field with III. 646	27
1944	III. 692	15 56 28.7	52 10 30	Not vF; R; S; has * 12 m 40" dist and 30° s f	72
		29.1	10 27	eF; S; R; has * 10 m 40° s f	71
		...	11 ±	eF; R. PD a mere guess	28
1945	Nova?	15 57 22.9	61 26 22	A * 7 m which I strongly incline to think has a nebulous atmosphere about 2' diam.	253
1946	III. 637	15 58 34.2	48 51 4	pB; vS; R; bM; c" ... 8" diam	156
		35.6	50 40	pB; vS; R; almost stellar or p s b M; diam 10"	155
1947	III. 553	16 1 17.4	88 50 12	F; L; p m E; v g b M; 2 1/2'	144
1948	III. 74	16 2 44±	72 51 2	eF	27
1949	III. 889	16 6 9.6	56 30 56	vF; S; R; bM	74
1950	III. 888	16 9 7.8	57 36 35	vF; v g l b M; 30 ... 40"	258
		9.7	36 21	vF; S; R; bM.	74
1951	III. 688	16 10 15.1	53 52 33	No description	72
		16.3	50 59	vF; S; R	28
1952	II. 151	16 10 31.5	82 10 35	F; pL; lE; v g b M; 50" l, 40" br.	153
1953	II. 402	16 12 58.4	91 52 32	eF; vL; oval; 3' l, 2' br; cloudy; 3m preceding nearly in the parallel is a fine double star.	146
1954	Nova.	16 13 39.9	51 48 33	vF; eS; R	72
1955	III. 623	16 13 46.1	51 49 14	vF; vS	73
		46.9	50 13	F; S; R.	72
		...	50 ±	Has a coarse double * 10° n f, 2' dist (past merid. No RA observed, and PD rough).	71

No.	Synonym.	R 1830-0.	N.P.D. 1830-0.	Description and Remarks.	Sweep.
1956 III. 624		$\begin{smallmatrix} h & m & s \\ 16 & 16 & 58.5 \\ & 61.7 & \end{smallmatrix}$	$\begin{smallmatrix} o & m & s \\ 51 & 40 & 19 \\ & 40 & 48 \end{smallmatrix}$	v F; irreg R; r	28
				F; S; R; b M	73
1957 Nova.		16 19 20.5	48 40 29	F; R; b M; sky very clear	155
1958 III. 638		16 19 25.8	48 42 49	No description	156
		28.0	43 9	p B; R; b M; 20"	155
1959 III. 639		16 20 9.6	40 8 53	F; S; R	73
1960 II. 652		16 22 0.1	48 40 28	v F; irreg R; among stars	155
		1.2	41 52	p B; p L; R; g b M; 40"	357
1961 II. 875		16 22 48.8	50 4 26	F; S; R	73
1962 III. 640		16 23 57.9	48 48 29	No description	156
		65.1	48 4	p B; S; R; b M; 12". Probably a mistake of 5" in reading the chronometer in one or other obs.	155
1963 III. 641		16 24 18.4	48 59 57	F; v S; R	73
		...	62 $\pm$	Rough P.D. Past merid	155
1964 III. 890		16 24 21.0	54 33 57	F; irreg fig; r; 2 or 3 of its stars seen, also one 13 m 30" dist n.f. RA reduction fluctuating and uncertain in this sweep.	71
		27.9	34 8	v F; E; near a *	72
1965 Nova.		16 27 9.3	54 17 48	F; S; R; g b M; has a * 11 m 75" n p dist 40" (by diagram).	72
1966 III. 893		16 30 41.4	50 37 31	v F; R; between 2 stars 14 m	357
		42.3	37 56	v F; S; between 2 stars	73
		...	38 $\pm$	Seen. Rough P.D. No transit	155
1967 Nova.		16 31 14.3	53 27 38	v F; v S; s m b M to a * 12 m; 12"	72
1968 M. 13		16 35 35.1	53 12 57	Very rich cluster; irreg figure; v L; v g m b M; stars 10 ... 15 m, or which there must be thousands; does not come up to a nucleus; has hairy-looking curvilinear branches. (See fig 86.)	71
		36.3	12 39	Irreg R with scattered stars in streaky masses and lines. Excessively condensed, to a perfect blaze. * s 11 ... 20 m; 7' or 8' diameter. Most magnificent object. The state of compression indicates a globular form not much denser at the centre.	28
		39.7	12 45	A very fine and striking object, but nothing to add to the description of Sw 71.	72
1969 II. 701		16 37 13 $\pm$	52 50 39	No description; RA a mere guess	28
1970 S. S. N.		16 37 18 $\pm$	65 53 $\pm$	Strauv's fifth nebula in the list at the end of the Dorpat Catal of D stars. v B equal to a star 8 or 8.9 m, 8" diameter, and of a uniform light, but with the edges boiling and ragged. A fine object like a star out of focus. Viewed between clouds. Strauv's place.	263
1971 M. 12		16 38 24.8	91 38 22	v rich globular cluster. The stars 10 ... 16 m; v g m b M, but has stragglers in lines and branches extending some distance from the most condensed part, which is 3' diam. Comes almost up to a blaze in the middle, and has a * 10.11 m in the centre.	146
		...	38 25	Irreg R; v L; 10' diam with stars from 10 to 20 m.	5
		...		Viewed June 1, 1833. Very like M. 10, but the stars more separated and fewer. It is also rather larger. A fine object. Stars 10.11 ... 15 m.	—

No.	Synonym.	R 1850-0.	N.P.D. 1850-0.	Description and Remarks.	Sweep.
1972	M. 10	h m s 16 48 10.8	93 50 ±	A globular cluster of scattered stars, but twilight and moon interfere. (P D from another sweep, not having been taken.)	75
		14.3	49 42	Is brighter than 12 M and rather larger and looser. (This disagrees with an obs of 12 M.) The bright part = 4', but the cl fills two thirds of the field = 10'. Stars 9...15 m.	146
		...	...	L; roundish; g p m b M; 10' stars 15...20 m	5
		...	...	Viewed June 1, 1831. A superb cluster of very compressed stars, g b M. The stars are 10...15 m, and run up to a blaze in the centre, but I see no nucleus. Diam about 6'; a noble object.	—
1973	III. 689	16 48 44.0	53 13 47	e F; v L; E in parallel; 2'1, 1'br	71
1974	Nova?	16 49 11.3	50 6 39	A suspicious object. It is pointed to by a F double * n f. Doubtful whether a nebula or a v F double star, with perhaps a third star near (of course ill seen).	357
1975	M. 19	16 52 6.9	116 0 0	A fine globular cluster, stars v S, 12...18 m, with one = 10 m, and one 10.11 m; nearly R; v g p m b M, but does not come up to a blaze (i. e. to a confusion of the stars with one another). Insulated; 3' diam. It forms a link between I. 70 and 10 or 12 M.	148
		...	...	Viewed July 1, 1823. F; R; g b M; r; fills ½ field; one or two * s seen, but the twilight too strong.	—
1976	VI. 11	16 54 7.1	114 30 52	B; L; b M; r; but too much twilight	30
1977	VI. 12	16 59 35.7	116 20 10	v B; R; p s b M; 90"; resolved; the stars are 19 or 20 m. This then is entitled to the name of a globular cluster.	148
1978	Nova.	16 59 42.7	116 20 5	F; S; v s b M; is a companion to the globular cluster VI. 12.	148
1979	M. 9	17 9 6 ±	108 20 ±	R; v g l b M; 3 or 4' diam; v faintly seen in strong twilight. R A from Catal. P D very roughly determined.	269
1980	II. 767	17 13 16.0	17 30 2	v F; R; g b M; 25" s f a small d * 2' dist.	428
1981	IV. 11	17 18 59.8	113 36 9	p B; R. Planetary?	30
		64.5	35 39	p B; R; 40". Twilight	31
1982	I. 44	17 28 16.8	113 47 36	A neb, with a p B star attached	30
		20.5	47 31	No description	31
1983	M. 14	17 28 42.3	93 8 25	A globular cluster; v L; S' or 10' diam; the stars so excessively minute as to be scarcely discernible. A striking object. Place probably very inaccurate.	5
1984	Nova?	17 36 55.3	114 48 59	A cl of v S stars. Twilight	30
1985	I. 150	17 38 45.5	110 17 33	p B; R; g b M; 60". Strong twilight	269
		...	...	Viewed; p B; p L; p s b M; 90"; easily found by the working list.	268
1986	II. 586	17 39 7.5	109 57 55	p B; p L; R; r; 40"	268
		8.5	56 38	p B; R; g b M; 60"; a star 15 m n p	269
1987	III. 741	17 39 43.9	17 48 32	v F; v S; R; b M; 60"; 90" n of * 8 m	428
1988	Nova?	17 42 25.6	115 20 54	Suspected; small; twilight	30
1989	Nova.	17 44 42.5	66 52 41	A S. R, very perceptible disc 1" or 1½" diam, with a v F nebula surrounding it—among many stars 12 and 14 m, none of which are so affected. A curious object. (See fig 42.)	266

No.	Synonym.	R 1850-0.	N.P.D. 1850-0.	Description and Remarks.	Sweep.
1990	M. 23	h m s 17 46 41.8	108 61 45	A v L, p rich, coarse, scattered cluster which fills the field. Stars 11 and 12 m.	276
		61.0	57 48	A star 10 m in centre of a beautiful discrete cluster of 60 or 70 stars 10 and 11 m and one of 9.10. They run in lines and arches. It is loose and straggling, and the sky around has a dotted appearance.	269
		61.2	58 18	A v large, coarse, straggly cluster of about 100 stars 9.10, .. 13m. It is announced several minutes before by an increased number of stars in the field.	33
1991	IV. 41	17 51 56.9	113 1 29	The double star Sh 379 in the centre of the trifold nebula IV. 41. (See my 5th Cat of double stars. Mem. R.A.S. and fig 80.)	275
		62.4	0 41	A careful drawing taken, but the neb is not clear from twilight and clouds. (N.B. This drawing is unfortunately lost, and that engraved in fig 80 is constructed from much less elaborate sketches, aided by memory.)	32
		64.3	0 6	v L; trifold, three nebulae with a vacuity in the midst, in which is centrally situated the double star Sh 379, neb = 7" in extent. A most remarkable object.	30
		...	0 43	Seen in its place, but clouds prevented observation.	31
1992	Nova.	17 54 3.6	78 56 57	A coarse and poor cluster of L stars.	196
1993	M. 21	17 54 25.1	112 30 2	A tolerably rich, sc, coarse cl; onc * 9 m, the rest 10 ... 12.	275
1994	II. 197	17 56 51.5	115 0 52	F; L; 1 E; b M; resolved.	50
1995	Nova.	17 59 3.3	108 26 52	A v coarse and scattered but p rich cluster of L and S stars. Has several double stars in it.	268
1996	Nova.	17 59 33.3	114 7 27	Several stars affected with nebosity: the brightest taken ...	30
1997	VIII. 54	18 0 40.4	106 49 7	Large poor straggly cluster. No other near the place of VIII. 54.	163
		...	45 ±	Very coarsely straggling and loose, hardly entitled to be called a cluster. The place (roughly taken) is that of 2 or 3 bright stars.	36
1998	VII. 30	18 2 32.3	111 36 10	A v L, v loose clus, pretty rich, fills the field; stars 11 ... 13 m	275
1999	Nova?	18 3 35.1	112 11 4	A cluster composed of 2 or 3 clusters of very small stars, and loose large ones. Perhaps this is an outlier of VII. 31.	275
2000	Σ.Neb.6	18 3 50.4	83 10 57	A beautiful round, perfectly well defined and brilliant disc, equalling a * 8.9 m. White equally bright. Well seen in broad morning twilight. A * 9.10 m follows, 2' dist. The sweeping power shows it as a * of large diameter, which could not escape examination in a good night; with 240 the disc seen as described. It cannot be more than 4" diam.	153
		...	11 24	B; R; 8" diam; rather hazy at the borders. It is something between a planetary neb and a B R neb. The light is pale and dull, but stellar, and equals a * 8.9 m. Two stars follow, the nearest distant in R.A. 14° 5. A fine and curious object. On long and careful attention I cannot get rid of the hazy border and reduce it to a sharp round disc.	279
		...	.....	Just caught in the evening twilight and shown to M. Struve the moment of his arrival at Slough, Aug 19, 1830, having travelled together from London.	282
2001	VII. 31	18 5 37.1	112 10 26	P rich; 3 or 4' diam; irreg fig; the stars v S	30
2002	Nova.	18 7 1.3	109 55 12	A double star in a faint neb. (See fig 30.) A very remarkable object.	270
		...	55 38	An oval nebula, involving a fine double star (N° 2827 of my 5th Catalogue), for which see further descriptions.	269
		...	55 56	A double * h. 2827 involved in a p B large nebula 50". See description of that *.	268

No.	Synonym.	R 1830° O.	N.P.D. 1830° O.	Description and Remarks.	Sweep
2003	VIII. 55	^h 18 ^m 7 ^s 44.0	106 41 50	A cluster with a triple * in it	274
2004	M. 24	18 8 27.5	108 28 13	A glorious concentrated part of Milky Way, almost amounting to a globular cluster. Stars 14 and 15 m.	269
		28.9	29 2	Fine cluster of stars 15 m; R; 6'; the stars are all of a size. The cl seems connected with the Milky Way.	270
2005	Nova.	18 8 38.0	105 0 8	Loose straggling cluster; stars 10..12 m	34
2006	M. 16	18 9 15±	103 50 34	No description	34
2007	M. 18	18 10 ±	107 11 42	A poor and coarse cluster. Contains about a dozen stars 10 m and 15 or 20 more 12..15 m.	270
2008	M. 17	18 10 44.2	106 17 53	The principal star in the preceding arc of the horse-shoe-like portion of the nebula M. 17. See fig 35.	163
		46.8	14 5	The small insulated, resolvable knot in the preceding, strait branch of the neb.	274
		51.8	14 19	The same knot. See description of this neb in the Appendix. See also the figure.	358
		...	15 48.:	A most curious object, not unlike the nebula in Orion (as it used to be figured, like a Greek capital omega, Ω.) There is in it a resolvable portion or knot distinctly separated from and insulated in the rest as if it had absorbed the nebula near it. (A figure carefully drawn.) (The P.D. inaccurate, being much past merid.)	33
		...	15 27.:	A large extended nebula. Its form is that of a Greek Ω with the left (or following) base-line turned upwards. The curved (or horse-shoe) part is very F, and has many stars in it. The preceding base-line hardly visible. The following, which is the principal branch, occupies nearly half the field (74'). Its light is not equable, but blotty. Strong twilight.	48
2009	Nova.	18 13 40±	102 6 42	A loose straggling cluster of stars 11..12 m	34
2010	M. 28	18 14 4.7	114 57 29	Not v B; but v rich, excessively comp globular cl; stars 14..15 m; m b M; a fine object.	30
2011	Nova.	18 21 23.0	103 16 16	A closely clustering portion of the Milky Way, which is one continued cluster here.	34
2012	II. 205	18 21 32.8	113 34 37	p B; R; g b M; 40"	30
		35.2	35 7	A beautiful little globular cluster of excessively minute stars, 60" diam; seen in twilight. It must be p B when seen in dark night. (Sky very pure.)	275
2013	VI. 23	18 22 47.2	107 0 11	A rich, p comp cluster; irreg fig having a vacancy in the middle; stars = 11..15 m.	36
2014	VIII. 14	18 23 20±	107 27 11	A very loose parcel of v small stars, hardly noticeable as a cluster	36
2015	M. 22	18 25 59.1'	114 1 16	A magnificent globular cluster; g b M but not to a nucleus. The stars from 12 to 20 m. Those 12 m are equally scattered over it, but those of 20 m form the central mass.	30
		61.2	1 11	A superb, v m comp, R cluster. Stars 11..15 m; not very well defined. Rather more comp to the n f side than at centre; admirably seen in twilight.	275
2016	Nova.	18 26 50.6	66 33 38	A v poor cluster 8th class	266
2017	Nova.	18 32 34.3	94 55 2	A L p rich cl of straggling stars, having a vacancy in M and broken into 2 or 3 clusters. Fills field. 70 or 80 stars of all magnitudes from 10 to 18 counted. Extended, in parallel. The most comp part f.	83

No.	Synonym.	R 18000.	N.P.D. 18000.	Description and Remarks.	Sweep.
2018	Nova.	$\begin{smallmatrix} h & m & s \\ 18 & 33 & 4.5 \end{smallmatrix}$	$\begin{smallmatrix} s & f & '' \\ 96 & 22 & 46 \end{smallmatrix}$	A more than usually condensed portion of the enormous cluster of the Milky Way. The field has 200 or 300 stars in it at once.	84
2019	M. 11	$\begin{smallmatrix} h & m & s \\ 18 & 42 & 0.1 \end{smallmatrix}$	$\begin{smallmatrix} s & f & '' \\ 96 & 27 & 42 \end{smallmatrix}$	A beautiful irregularly R cl 10' or 12' diam. The stars are all 11 m except one = 9 m whose place is taken. Examined with high magnifiers [I have often viewed it with 800 and even 1200]; it is broken into 5 or 6 distinct groups with rifts or cracks between them.	82
		$\begin{smallmatrix} h & m & s \\ & & 1.1 \end{smallmatrix}$	$\begin{smallmatrix} s & f & '' \\ & 28 & 27 \end{smallmatrix}$	A glorious object. The bright * 9 m out of the centre taken.	85
2020	Nova.	$\begin{smallmatrix} h & m & s \\ 18 & 43 & 27.4 \end{smallmatrix}$	$\begin{smallmatrix} s & f & '' \\ 79 & 51 & 0 \end{smallmatrix}$	A p considerable cl; 15' diam; irreg fig. 50 or 60 stars large and scattered. The place is that of the double * No. 870 of my third catalogue.	88
2021	Nova.	$\begin{smallmatrix} h & m & s \\ 18 & 44 & 31.0 \end{smallmatrix}$	$\begin{smallmatrix} s & f & '' \\ 110 & 6 & 12 \end{smallmatrix}$	A p rich cluster, figure like the letter S, 7' in extent. Stars 9...13 m. Counted 40 of them.	268
2022	III. 143	$\begin{smallmatrix} h & m & s \\ 18 & 44 & 50.3 \end{smallmatrix}$	$\begin{smallmatrix} s & f & '' \\ 112 & 54 & 20 \end{smallmatrix}$	A little knot of 8 or 10 stars crowded together. It is 1' 40" south of α Sagittarii, and on same meridian.	30
2023	M. 57	$\begin{smallmatrix} h & m & s \\ 18 & 47 & 13.2 \end{smallmatrix}$	$\begin{smallmatrix} s & f & '' \\ 57 & 10 & 37 \end{smallmatrix}$	The annular nebula in Lyra. The diameter of the ellipse in R A = $6^{\circ}5'$: It has a small star f exactly on the parallel of the centre, and distant from the edge rather more than the breadth of the ring.	198
		$\begin{smallmatrix} h & m & s \\ & & 13.4 \end{smallmatrix}$	$\begin{smallmatrix} s & f & '' \\ & 11 & 7 \end{smallmatrix}$	Annular neb between β and γ Lyrae. Pos of longer axis of annulus = $57^{\circ}0'$ by microm. The small * f is almost exactly on the parallel of the centre, dist about = breadth of ring. The central vacuity is not black; a nebulous light fills it. The edges are not sharply cut off, very slightly ill defined. See fig 29.	197
		$\begin{smallmatrix} h & m & s \\ & & 17.6:: \end{smallmatrix}$	$\begin{smallmatrix} s & f & '' \\ & 11 & 31 \end{smallmatrix}$	R A not good, the sweeping zero having been interrupted by the disturbing effect of the side motion in viewing objects.	109
		$\begin{smallmatrix} h & m & s \\ & & \dots \end{smallmatrix}$	$\begin{smallmatrix} s & f & '' \\ & 13 & \pm \end{smallmatrix}$	No R A, very rough P D; viewed; diameter in R A = $5^{\circ}37.5'$ by a mean of 4 careful obs. The star following it = 11 m. It follows the centre $4^{\circ}31'$, and its pos from centre = $96^{\circ}4'$ by microm. The neb has a mottled look. [N.B. This mottled look, however, is something quite different from the appearance called resolvable.]	168
2024	Nova.	$\begin{smallmatrix} h & m & s \\ 18 & 49 & \pm \end{smallmatrix}$	$\begin{smallmatrix} s & f & '' \\ 79 & 51 & 30 \end{smallmatrix}$	A cluster discovered with the 7-feet equatorial, Sept 5, 1828.	—
2025	Nova.	$\begin{smallmatrix} h & m & s \\ 18 & 52 & 0.5 \end{smallmatrix}$	$\begin{smallmatrix} s & f & '' \\ 90 & 41 & 27 \end{smallmatrix}$	A considerable cl; not rich, but fills the field. *s = 12 m; place that of a double * No. 874 of my third catalogue.	80
2026	Nova.	$\begin{smallmatrix} h & m & s \\ 18 & 52 & 13.8 \end{smallmatrix}$	$\begin{smallmatrix} s & f & '' \\ 108 & 46 & 32 \end{smallmatrix}$	A * 10 m in a p rich, roundish cluster 8' diam; stars 12...15 m.	268
2027	Nova.	$\begin{smallmatrix} h & m & s \\ 18 & 53 & 25.7 \end{smallmatrix}$	$\begin{smallmatrix} s & f & '' \\ 78 & 37 & 43 \end{smallmatrix}$	The central star (double) in a coarse and poor cluster.....	196
2028	Nova.	$\begin{smallmatrix} h & m & s \\ 18 & 54 & 47.7 \end{smallmatrix}$	$\begin{smallmatrix} s & f & '' \\ 60 & 58 & 3 \end{smallmatrix}$	A p L, poor cl of stars forming irreg groups or patches, 11.12 m; diam = 8'.	159
2029	Nova.	$\begin{smallmatrix} h & m & s \\ 18 & 56 & 23.5 \end{smallmatrix}$	$\begin{smallmatrix} s & f & '' \\ 88 & 27 & 44 \end{smallmatrix}$	A cluster of loose small stars of various magnitudes; fills the field.	78
2030	VII. 19	$\begin{smallmatrix} h & m & s \\ 18 & 59 & 18.7 \end{smallmatrix}$	$\begin{smallmatrix} s & f & '' \\ 86 & 1 & 39 \end{smallmatrix}$	A cl of small stars; fig irreg	78
		$\begin{smallmatrix} h & m & s \\ & & 21.7 \end{smallmatrix}$	$\begin{smallmatrix} s & f & '' \\ & 0 & 53 \end{smallmatrix}$	A v L, v rich cl, composed of 2 or 3 clustering groups running together; place that of the most condensed part.	278
		$\begin{smallmatrix} h & m & s \\ & & 22.8 \end{smallmatrix}$	$\begin{smallmatrix} s & f & '' \\ & 3 & 22 \end{smallmatrix}$	L, loose cl; fills field; the most condensed part is 3' in extent. Stars = 12..14 m.	77

No.	Synonym.	R 1830-0.	N.P.D. 1830-0.	Description and Remarks.	Sweep.
2031	VII. 62	$19^{\circ} 0' 16.4''$	$85^{\circ} 35' \pm$	Pretty compressed cl; irreg fig. P.D. by the Sweep 77 being out of the limits of the sector.	79
		18.5	.....	Pretty rich; S; m compressed; oval or rather fan-shaped. The stars 11...12 m, 4' in extent; the n f side most comp.	278
		...	35 26	p comp; irreg fig; 2' diam; st 15 m.....	77
			32 49	p comp; S; R or irreg; taken out of merid.....	78
2032	IV. 14	$19^{\circ} 5' 39.1''$	$92^{\circ} 60' 9''$	v F; R; v l b M; r; 30". Nothing observed about it remarkable enough to entitle it to a place in class IV.	82
		42.3	59 54	v F; L; R; v l b M; diam in RA = 4".5.....	83
2033	Nova.	$19^{\circ} 6' 34.7''$	$85^{\circ} 25' 8''$	Coarse; not very rich; eighth class.....	278
2034	Nova.	$19^{\circ} 6' 55.2''$	$106^{\circ} 33' 35''$	A fine, L, loosely scattered cl of large with some small stars. Fills 2 or 3 fields.	274
		...	30 $\pm$	A very large straggling space full of loose stars, S, 9, and 10 m	163
2035	Nova.	$19^{\circ} 8' 5.0''$	$91^{\circ} 12' 51''$	A cluster; poor; loose; irreg fig; stars 10 and 11 m.....	81
2036	M. 56	$19^{\circ} 9' 46. \pm$	$60^{\circ} 6' 6''$	A * 9 m precedes, about 1' diam. (The RA in these early sweeps is liable to great errors.)	8
		52.1;	6 37	Fine; v compressed; m b M; stars 11 m; a * 9 m precedes. Clouds interfered.	197
		55.8	7 8	p rich; S; irreg R; g b M but not to a nucleus; 2 1/2' to 3 diam; stars 13 and 14 m, well seen in full illumination of field. A few scattered stars.	159
		56.6	7 10	L; R; v g b M. I see the stars which are v S and of different sizes. It fades gradually away at the borders.	7
		57.1	6 50	No description.....	199
		58.3	6 49	Fine comp cluster; R, inclining to a triangular form; b M; stars 12...14 m. A fine object, diam 3'.	198
2037	III. 743	$19^{\circ} 10' 9.4''$	$83^{\circ} 45' 19''$	A most beautiful, v L, F planetary nebula. Diameter in RA = 6".5 = 1' 37"; its light nearly uniform, only very little hazy at the edge and perhaps rather brighter at the southern limb. Its nature seems to have been overlooked or mistaken by my Father, who has placed it in his third class. In Milky Way. Many stars in field, one 11 m near the n f limb.	280
		...	46 29	Pos of the small * near the edge, from the centre = 53".0 by microm.	281
2038	Nova.	$19^{\circ} 11' 50. \pm$	$91^{\circ} 24' 34''$	An e S stellar neb = a * 15 m; it is 1/2 of a diam of field (= 10') from a double star which it follows, to S. Pos from the star = 240" $\pm$. The RA is excessively loose.	5
2039	VIII. 81	$19^{\circ} 15' 56.3''$	$68^{\circ} 9' 23''$	Has a double star h. 686 in it.....	267
		56.9	8 53	Coarse, poor cluster; stars 10...11 m. The southern of a group, is a first class double *.	266
		57.5	10 2	Place that of a double * at the northern extremity of the more condensed part of a L, loose, poor cluster of st 10...15 m.	90
2040	Nova.	$19^{\circ} 17' 36.7''$	$86^{\circ} 48' 13''$	The first of 3 stars 9 m, nearly in the parallel, joined by a rich clustering portion of the Milky Way.	278
2041	VIII. 21	$19^{\circ} 20' 7.8''$	$65^{\circ} 11' 55''$	v L; p rich; very straggling; stars 10 m; fills field.....	167
2042	VI. 14	$19^{\circ} 23' 10.0''$	$70^{\circ} 5' 7''$	A rectangular cluster, v m comp; 3' or 4', 2' br; stars 14...18 m; among B stars.	364
		10.2	4 57	c F; p L; v g b M; 4' 1, 2' br; composed of stars 17 or 18 m..	362
		12.6	4 6	A curious object, 4' 1, 1 1/2' br, extended in merid. The largest st 16 m.	90

No.	Synonym.	R 1830-0.	N.P.D. 1830-0.	Description and Remarks.	Sweep.
2043	VI. 38.	19 23 25.4 26.1 26.6 28.5	81 7 10 7 17 7 22 7 22	A cluster. Has a * 16 m, one or two 18 m, and neb A very small compressed fan-shaped cluster of stars 11 ... 18 m, diam = 1'; a * 11 m on the n f side forms the vertex of the fan. Doubtful if a resolved cl or a neb of first class. p L; R; b M; 60"; with 2 or 3 accidental stars of the Milky Way. A v S roundish cluster, 40" diam, of v S stars, one brighter than the rest and = 15 m. It is like a nebula well resolved, and is a curious object.	50 280 88 196
2044	Nova.	19 32 21.0 64.9	43 64 41 58 50	A double * in the southern part of a fine, large, pretty rich, coarse cluster of about 100 stars 11 ... 14 m; it fills the field. The centre of the more condensed part of a considerable cluster, 10" diam, of irregularly scattered stars.	203 206
2045	III. 744	19 33 21.0	100 42 35	Not v F; p L; R; b M; r; 50"	86
2046	Nova.	19 33 53±	63 35 ±	v L, p rich, straggling cluster; it more than fills the field. Stars 10 ... 15 m.	167
2047	IV. 51	19 34 20.3 -21.3 22.7	104 32 37 33 29 32 54	Planetary nebula. B; R; equals a * 9 m in its light; diam = 10" by estimation. Perfectly round; there is no central vacuity (power 320). The light, though not hazy, is turbid, not like stars, but a kind of curdled appearance, very singular. Has two stars very near. The nearer, A, 15.16 m; pos 300° 5, 312° 8, 313° 0; the first measure taken with 320, and better than the others. The further, B, 15.16 m; pos 62° 1, 78° 0 (with 320). Dist of A 30", of B 50". (See fig 46.) Exactly R; = * 8 m; disc = 10" or 12" in diam; has 2 stars 12 m near. Pos of A = 307° 0, of B = 81° 5. Central measures. Light equable, and disc very lucid, yet a little (not hazy, but) as if boiling at the edges, with a suspicion that it may not be well defined. Exactly R; diam estimated at 8"; the light equable and equals a * 6.7 m. It is exactly like a planet and two satellites. Distance of A, the nearer, 20", Pos 45° n p; of B, 25", 20° n f.	363 163 34
2048	Nova.	19 35 22.7	50 12 7	A beautiful cluster, v rich, v L; stars 11 ... 15 m and 1 = 7 m n f, a reticulated mass, central part = 4', but fills field with its loose stars. A very fine object.	359
2049	VII. 18	19 35 56.9	67 5 68	p rich, irreg R; 5' diam; a cl of loose stars; the chief = 10 m, the rest = 11 ... 12. Four or five in centre form a lozenge.	266
2050	IV. 73	19 40 18.8:	39 54 0	A most curious object. (See fig 43.) A * 11 m surrounded with a v B, perfectly R planetary neb, of equal light throughout. Diameter in R A = 3'.5. Perhaps a very little hazy at the edges. With 320 the * is not seen double.	207
2051	VIII. 73	19 42 2.6 ...	82 30 40 31 ±	A * 8 m in a poor cl, hardly to be called a cluster. (Night very bad.) Coarse; straggling; 15'; not remarkable; chief * = 9.10 m.	89 88
2052	VII. 9	19 43 47.2	67 20 14	Fine large coarse cl; fills field. Stars 11 ... 12 m, some outliers = 9, 10 m.	266
2053	Nova.	19 45 11.5	31 0 24	A * 7 m in midst of a field full of 40 stars 10 ... 12 m	366
2054	VIII. 16	19 45 21.6	61 1 38	Coarse irreg R; with detached portions of smaller stars. Those in the main cluster = 11 or 12 m	7
2055	VIII. 18	19 45 28±	78 45±	Viewed. In place by working list? It is a coarse straggling part of the Milky Way.	196

No.	Synonym.	R 1830.0.	N.P.D. 1830.0.	Description and Remarks.	Swarp.
2056	M. 71	$\begin{smallmatrix} h & m & s \\ 19 & 46 & 5.7 \end{smallmatrix}$	$\begin{smallmatrix} 71 & 41 & 14 \\ 38 & 31 \\ 38 & 42 \end{smallmatrix}$	v rich; m comp; g b M; an irreg R cl of v S stars, inclining to triangular form. In a rich part of Milky Way. v L; loose; fills field; a fine object; stars 11...16 m; the most condensed part = 3', of an acute triangular figure, the angle northwards. An irreg R mass of closely packed st; g b M; 3' or 4' diam; a decided cl; but towards the s p the Milky Way is immensely rich.	300 90 364
2057	VI. 16	$19\ 46\ 53 \pm$	$72\ 33 \pm$	A quantity of Milky Way stars, immensely close, one small patch of which may be the cluster VI. 16. An insignificant bunch of little stars in the Milky Way. Hardly more marked than the general mass, which is astonishingly rich here.	362 92
2058	VIII. 19	$19\ 47\ 17.0$	$78\ 20\ 12$	A small, poor cluster; the preceding of two distinct clusters. The stars 11 m. Viewed. Is a coarsely clustering part of the Milky Way	106 123
2059	Nova.	$19\ 48\ 7.0$	$78\ 17\ 12$	A poor, small cluster. The following of two, just alike	106
2060	M. 27	$19\ 52\ 8.6$	$67\ 43 \pm$	(See fig 26.) A nebula shaped like a dumb-bell, with the elliptic outline completed by a feeble nebulous light. Position of the axis of symmetry through the centres of the two chief masses = (by microm) $30^{\circ}0$ or $60^{\circ}0$ n f . s p. The diam of the elliptic light fills a space nearly equal to that between the wires (7' or 8'). Not resolvable, but I see on it 4 distinct stars 1 = 12 m at the s f edge; 2 = 12.13 m, almost diametrically opposite; 3 = 13 m in the n p quarter, and 4 = 14.13 m near the centre. Place that of the centre. Place the most condensed part of the southern head; diameter in R A = $25^{\circ}0$. A most extraordinary object; v B; an unresolved nebula, shaped something like an hour-glass, filled into an oval outline with a much less dense nebulousity. The central mass may be compared to a vertebra or a dumb-bell. The southern head is denser than the northern. One or two stars seen in it.	166 90
		10.0	$45\ 11$		
		10.3	$44\ 7$	I showed a friend the oval filling up of the outline of this strange object as delineated in Sw 266, and he saw it well.	267
		15.0	$44\ 14$	Like a double-headed shot or a dumb-bell. The light perfectly milky; the s p head is a v l the brighter. The outline is filled up elliptically with a F nebulousity as in figure, which, I think leaves ansæ as if inclined to form a ring. Two S at it and many more near, one close to edge (No. 1 of Sw 166). A most amazing object. Position of greater axis of the elliptic outline = $117^{\circ}1$; of axis of symmetry $31^{\circ}4$ (microm).	266
2061	Nova.	$19\ 54\ 58.2$	$79\ 12\ 19$	A pretty rich oblong cl; 10' l, 5' br; stars equal and of 15th mag. In Milky Way. Place that of a double *.	196
2062	III. 144	$19\ 55\ 12.4$	$56\ 54\ 26$	A small bunch of very minute Milky Way stars, so small as almost to look nebulous; n p is another.	199
		13.9	$56\ 23$	A nebulous-looking patch; 12" diam; in Milky Way; ill-defined; perhaps only some c minute stars mixed with larger which are distinct.	158
		15.0	$56\ 21$	F; S; R; among a field full of stars.....	168
2063	Nova.	$19\ 55\ 28.2$	$34\ 20\ 3$	A small pretty close cluster; irreg R; 3' diam; stars 12...16 m.	211

No.	Synonym.	At 1830°O.	N.P.D. 1830°O.	Description and Remarks.	Sweep.
2064	M. 75	^{h m s} 19 56 2.5	^{° ' "} 112 23 31	v B; R; v s v m b M; 2'; a bright R ball 15" diam, in an atmosphere 2'; 320 does not show the stars but makes it more resolvable.	369
		2.7	23 38	p B; R; p s v m b M; r; 90"	298
		2.9	24 10	Not B; S; R; p s b M; 2' diam; r, but not resolved. An insignificant object.	275
2065	Nova.	19 56 12.0	94 1 59	A little compact knot of 7 or 8 stars taken at first for a nebula, (and liable to be mistaken for one hereafter). Stars 19 m.	83
2066	VII. 59?	19 58 12.2	46 28 50	A coarse rough cluster. Taken for VII. 59, but the place does not agree.	203
2067	Σ. 2630	19 59 30.6	54 42 17	A double * Σ. 2630, in a cluster of 5 bright and many small stars.	168
2068	Σ. 2631	20 0 43.7	69 23 2	A double * the chief of a coarse straggling group of stars 10....13 m, hardly entitled to be called a cluster.	362
2069	VIII. 66	20 1 39.0	52 14 43	A coarse scattered cluster of about 60 stars. The largest (10 m) taken.	260
2070	Nova.	20 4 51.5	54 39 36	A double * in a cluster of a good many stars 10....13 m	168
2071	VIII. 20	20 4 51.7	64 1 10	Splendid cluster. More than fills the field; loose and straggling; poor in stars, one = 6.7 m whose place is given; the rest 9, 10, 11.	167
2072	IV. 13	20 9 31.6	59 59 ±	Planetary nebula; diam [by inexperienced estimation] = 1'; light equable, exactly round; v F, a mere ghost; P.D. roughly taken and of no value. Sept 4, 1825.	7
		32.9	57 16	e F; 15' diam; strongly suspected to be annular, but the darkness in the centre is not striking.	199
		33.5	56 43	e F; annular; pretty sharply defined; a very little elliptic; the northern limb is the brightest; the darkness in the middle requires some attention to see, but once seen it cannot be mistaken. A most curious object, resembling much the annular nebula in Lyra, but rounder, smaller (not above half the diameter,) and far fainter. (See fig 48.)	198
		.....	.....	Viewed Sept 7, 1825, past merid. the transit being missed owing to its faintness. It is exactly R, but decidedly brighter at the edges than in the middle. It is a round miniature of the annular neb in Lyra (40" estim diam,) having a darkness in the middle. I made my assistant come up and look at it. He said it had a hole in it. (N.B. Much better seen than last night (Sweep 7), and more attentively examined.)	8
2073	Nova.	20 13 55.5	109 50 39	A * 10 m, with a considerable nebulous appendage s.p. in which by glimpses may be fancied a star 15 m.	268
		56.5	51 35	A * 10 m, with a nebulous wisp, in which by glimpses a * 18 m may be seen; pos = 194° 2' by microm. A very curious object.	267
		56.6	50 22	A * with a nebula attached in which is a small * or nucleus 17 m.	270
2074	Nova.	20 14 29.7	64 47 10	A small straggling cluster of stars 10...11 m. One of the 9 m, whose place is taken.	167

No.	Synonym.	AR 1850.0.	N.P.D. 1850.0.	Description and Remarks.	Sweep.
2075	IV. 16	$\begin{smallmatrix} h & m & s \\ 20 & 14 & 46.1 \end{smallmatrix}$	$\begin{smallmatrix} s & m & s \\ 70 & 26 & 7 \end{smallmatrix}$	Fine planetary nebula; B; exactly round; rather hazy at the edges, but not materially brighter in the middle, but <i>no hollow</i> . It has four small stars near it like satellites. (See fig 47.) Pos of B = $358^{\circ}0$ by micr, dist estim $30''$, 10 m; of D pos = $41^{\circ}2$, $60''$, 13 m. Clouded suddenly before I could measure the others.	364
		48.0	25 40	Exactly R; F; diam = $2''$ in R A = $30'' \pm$. Its light is a little mottled, but it is well defined. Lies between 2 stars, but nearer to the southern (A) than to the northern (B); A is 83° s f (i.e. pos = 175°), and the centre of the neb is $\frac{1}{2}$ of its diam to the preceding side of their line of junction.	90
		48.8	26 7	Fine planetary nebula. R; diam = 18 or $20''$; a little hazy at the edges, or rather pretty much so, so as to be ill defined. Has 4 stars near; one of them (B) = 10 m, pos = $359^{\circ}0$; dist $40''$; another (C) = 11 m, pos = $104^{\circ}8$, $60''$; another (A) is very nearly in a line with B and the centre, perhaps a degree or two to the following side; the neb is pretty bright.	362
2076	III. 141	20 14 56.5	115 20 32	v F; L; R; v g l b M; 3' diam; r; the sky hazy.	289
2077	VIII. 56	20 17 0.8	49 44 48	A poor and coarse but rather brilliant cl, 2 s 9 m (the n p taken) and 30 or 40 more 10 12 m.	183
		2.0	49 $\pm$	A fine cluster of about 30 stars, one = 8 m taken, (but very coarsely); one = 9 m, and many stragglers 10 16 m.	201
		12.9	47 7	p B; S; the stars are 11 m, and two are 7.8 m. Place that of the s f. 40 stars counted, 5' long, 3' broad.	339
		...	50 $\pm$	A fine close cluster of p L stars, not rich; irreg fig.	180
2078	M. 29.	20 17 45.5	52 1 48	A coarse cluster of 8 large stars (10 m), and a dozen or 20 smaller in a roundish form. (Milky Way.)	200
2079	III. 142	20 24 16.6	92 35 51	v F; p L; 1 E in merid; the n p of 2	81
		20.6	35 38	v F; p L; p m E; or two joined; nearly in the meridian	285
2080	Nova.	20 24 33.1	92 36 51	v F; v S; the s f of 2.	81
		36.5	36 8	v F; among small stars	288
2081	I. 103	20 25 50.8	83 9 39	Globular cluster; diam in R A = $4''$; all well resolved; p g b M; a * 9 m precedes $7^{\circ}5$.	281
		51.9	9 53	Observed with M. Srauvz the evening of his arrival at Slough.	282
		52.1	9 37	A beautiful, v compressed, B, R, globular cluster, 3' diam, well resolved. Stars = 16 20 m. A p B * p.	280
2082	VII. 17	20 27 15.6	68 20 $\pm$	Place of the chief * 10 m of a coarse, poor, straggling cluster	166
		...	23 $\pm$	Very poor. The large star taken but carelessly, as it offers no interest.	90
2083	VI. 42	20 27 56.4	29 56 37	A * 11 m with a rather poor cluster of stars 12 15 m; C near full, but probably in dark night a rich cluster, 5' in diam, fan-shaped, and a B * at the point.	218
		59.6	55 42	Fine, rich, p compressed cluster; 5' diam; stars 11 13 m, rather convex on the p side.	367
		64.3	55 44	Very fine rich cluster; 5' diam; stars 12 m and nearly equal; shape rather convex towards the preceding side.	366
		72.1	.....	Very fine rich cluster; stars 11 16 m, (not stated what part of the cluster taken, probably the middle; whereas the foregoing observations evidently refer to the preceding bright star).	214

No.	Synonym.	At 1830°.	N.P.D. 1830°.	Description and Remarks.	Swep.
2084	IV. 76	h m s 20 31 16.9	30 26 2	av F, v L patch, no doubt a cluster S or 16' in extent, v g v l b M; but I cannot see the stars.	367
		18.9	26 14	v F; e L; v g l b M; r; 5' or 6'; irreg fig. A curious object; no doubt a great cluster of e F stars. Requires the eye to be well prepared for seeing it.	306
		21.7	27 11	v F; v L; v g b M to near the middle, and then p a b M; S or 5' diam; is barely resolvable; seems to be an enormous cluster, immensely distant.	214
2085	VIII. 23	20 33 17.6	73 56 54	Poor, large, scattered cl; the brightest * = 10 m.	92
2086	III. 219	20 35 48.6	78 5 58	v F; S; 15'' precedes and is attached to the double star No. 1566 of my fourth catalogue.	196
2087	II. 426	20 38 35.1	90 18 16	p F; S; R; g b M; 15 ... 20''	81
		36.2	17 6	e F; S; R; l b M; 12''	294
2088	V. 15	20 38 38.6	59 53 30	The place is that of k Cygni, through which the nebula passes. It is very long and winding and runs northward from k full 2 fields' breadth (30'). One branch is pretty conspicuous, even in a little moonlight. The nebulosity is milky, and does not seem to arise from small stars of the Milky Way ill seen.	178
		38.9	53 56	The neb extends southwards far beyond k Cygni, but is e F; the northern part is p B (at least in a very clear night) and extends to two stars. P D = 59° 26' 56''. [A drawing made, which with others made since has served for the construction of fig 33, which represents this extraordinary object.]	199
		38.6	.....	Northwards from k Cygni 27' extends a curved tail of nebula of a serpentine form, fading very gradually into two tails forming a fork. Its general direction is in the meridian. Barely attains k Cygni, and is there of extreme tenuity. Requires a fine night and the eye well prepared by at least 3 ^m exposure to darkness.	198
2089	II. 427	20 38 41.1	90 19 36	F; v S; R	81
		41.7	18 33	e F; v S; 6''	294
2090	M. 72	20 44 5.1	103 10 26	F; R; g b M; resolved into very small stars; 2 or 3' diam...	10
		5.8	10 9	p B; v compressed cluster; irreg R; barely resolved; v g b M; 3' diam; many straggling stars near, but none so small as those of the cluster.	365
		6.5	10 13	F; R; 2' diam; g b M; r, but I do not see the stars separated enough to count them. Sky beautiful. Has a * 9 m 30° s f, dist 3'. Is rather an insignificant object.	34
2091	VIII. 76	20 48 51.0	43 22 10	A star 9 m; the largest of a cluster	210
		77.6	18 22	A * 11 m. The last of that magnitude in an irregular triangular cluster 6' diam; poor and straggling.	209
2092	V. 14	20 49 19.1	58 57 1	Place of the southern and brightest star of a trapezium south of the bifurcation of this nebula. The neb is e F, v L, and straggling, extending at least 4 fields (= 1°). Its direction is (by diagram) about 20° n p to s f, and near the middle it forks into two chief branches. (See fig 34.) In the trapezium (or oval) above spoken of are G stars 1 = 11 m; 2 = 10 m; 3 = 12 m; 4 = 14 m; 5 = 15 m; 6 = 12 m. The northern branch of the fork is the principal, and passes s of a double * (7).	199

See next
page.

3

No.	Synonym.	Δ 1830.0.	N. P. D. 1830.0.	Description and Remarks.	Sweep.
		$h \quad m \quad s$ 22.7	$^{\circ} \quad ' \quad ''$	The same star in the nebula V. 14. The nebula is of great extent, passing obliquely through and rather under (to the s of) a small constellation, being densest where under it; but it is extremely F and only to be seen with an eye well prepared and in a very clear night. The whole neighbourhood seems affected with wisps or cirro-stratus-like masses of nebula.	198
2093	Nova.	20 50 4.4	60 26 6	(See figure 52.) A most wonderful phenomenon. A very large space 20' or 30' broad in P. D. and 1" or 2" in R. A. full of nebula and stars mixed. The nebula is decidedly attached to the stars and is as decidedly not stellar. It forms irregular lace-work marked out by stars, but some parts are decidedly nebulous, wherein no stars can be seen. A figure (from which the drawing for the engraving was copied,) represents general character, but not the minute details of this object, which would be extremely difficult to give with any degree of fidelity.	8
2094	VIII. 82?	20 50 28.0	45 10 50	Coarse, poor, p L cluster; stars small	203
		...	.....	Viewed. A mere clustering portion of the Milky Way	189
2095	Nova.	20 52 22.0	90 51 31	e F; S; E in the meridian	81
2096	V. 37?	20 53 12 $\pm$	46 20 $\pm$	An immense nebulosity all around this place, but too ill defined to fix the limits. R. A. that of V. 37, from working list, not being settled by the obs.	203
2097	I. 52	20 53 36 $\pm$	74 28 49	B; R; g b M; 60"; R. A. from working list, no transit being procured.	12
2098	IV. 1	20 54 50.5	102 2 46	Fine planetary nebula. The disc is exactly round, and nearly of an equal light throughout; bluish white; a little haze about it: has a ≈ 13 m n p (about 80") diam = 3 diameters.	10
		52.0	1 53	Round; v B; equal to a ≈ 6.7 m; the light perfectly equable, only a little dim at the edges; diameter = 300".	9
		54.3	2 4	v B; diam 20...25"; a little oval, perfectly well defined	365
		55.0	1 40	Exactly round; a very little hazy at the borders; the rest of the disc quite equable; light blue; diam 10 or 12". [See fig 44. M. STRUVE has given as measures of the diameters of this nebula 25" and 17". From the general tenor of the foregoing obs I am disposed to think this ellipticity greater than the real.]	34
2099	I. 192	20 55 25.0	36 6 23	L; E; r; has an appearance of two nuclei or points of greatest condensation; it touches a fine double star.	211
		36.0:	6 55	L; E; 60" l, 40" br; r; one star is very plainly seen; it is rather wedge-shaped, pos = 225" $\pm$. A double $\approx$ is close to it. R. A. very doubtful.	—
2100	Nova.	20 55 27.1	103 10 11	e F; R; r; 60"	48
2101	Nova.	20 56 6.5	43 20 50	A cluster. No further description	210
2102	II. 203	20 56 21.8	60 46 18	p B; S; p s b M; 12"; has a ≈ 10 m, pos 345° 0 by microm; field full of stars.	177
		23.8	46 48	p B; R; p s b M; 15"	178
2103	VIII. 57	20 59 38.5	49 11 7	A loose straggling coarse cl. Stars 10...11 m, place that of 3 ≈ 10 m in a triangle in the closest part. Several at precede the cl, which seems to be an outlier of the second branch of the Milky Way.	183
		101.0	8 31	A poor and loose cluster; place that of a double star, h. 1613 of my fourth Catalogue.	180
2104	Nova.	21 2 11.7	75 14 19	A scattered cluster of small stars	12

No.	Synonym.	R 18300.	N.P.D. 18300.	Description and Remarks.	Swcep.
2105 VIII. 74		h m s 21 2 29±	6 50 24	A curious scattered cluster of triple stars; RA taken from working list.	207
2106 Nova.		21 3 49.3	56 58 6	A cluster, not very rich; irreg figure, S'l, 5' br; stars 11...15 m	199
2107 Nova.		21 5 9.8	45 0 51	A star 6.7 m situated just beyond the n f edge of a L, p rich cluster, 11...15 m, 20' long, 7' broad. Extended from n f to s p.	210
2108 Nova.		21 6 18.4	86 10 55	c F; field feebly illuminated by C, but I remained satisfied of its reality.	79
2109 III. 858		21 6 20.7	87 51 58	c F; R; 11 M.	95
		22.9	51 25	c F; R; barely visible; night exquisite	94
2110 VI. 24		21 6 54.7	48 11 8	v F; L; irreg fig; p rich; not m b M; 2 or 3 p L stars, the rest 10...18 m; 5' diam.	204
		40.9	13 3	v F of 18 m; 15...18 m; irr fig; p L; v g l b M; 4' diam; a delicate object.	183
2111 Nova.		21 8 20.3	54 30 41	No description. A cluster	168
2112 III. 145		21 11 17.4	64 16 47	F; R; 20'; the RA may be 2' or 3' out	172
2113 Nova.		21 12 43.6	99 30 3	v F; R; g b M; near a double star	86
2114 Nova.		21 14 34.8	33 7 25	A F, S, poor cluster, 8' diam	212
2115 Nova.		21 15 16.0	39 54 40	The chief * of a coarse, poor cl.	207
2116 VII. 51		21 17 5.4	44 21 8	A neat, pretty compact cluster of 50 or 60 stars 4' diam; irreg fig; a * 13 m taken, the chief in the preceding part.	203
		7.2	20 32	A * 10 m, the preceding of a cl, 4' in diam, and pretty rich ..	209
		7.6	20 28	A fine cluster of a triangular figure; the preceding * taken ..	210
2117 Nova.		21 17 51.5	54 13 24	A poor cluster, stars 10 m	168
2118 VII. 50		21 18 33.0	42 42 27	A double *. The chief of a poor cl.	205
2119 Nova.		21 20 26.6	42 48 6	A very poor and small cluster of an oblong figure. It is followed by a loosely scattered mass of stars.	210
2120 M. 13		21 21 43.0	78 34 19	v B; v L; irreg R; g b and v s m b M. A magnificent globular cluster; comes up to a perfect blaze in the centre, like a protuberance or nipple; not the condensation of a homogeneous globe; it has straggling streams of stars, as it were, drawing to a centre. It is not round. Has a * 8 m, 30' following in parallel.	14
		...	36 ±	Superb; very comp; irreg R; v S stars 15 m, all distinct but running together into a blaze in middle; 4' or 5' diam. One * 8 m n f dist 10'.	13
2121 III. 859		21 22 47.0	68 15 13	v F; S; R; has a * 14 m south. Dist from centre = 1 diam (by diagram).	205
2122 VII. 52		21 23 16.9	43 38 57	A * 10 m, the chief of a p rich, fine, L, coarse cluster. Stars 10...13 m.	—
2123 Nova.		21 23 46.7	73 19 19	A coarse scattered cluster	12
2124 VI. 32		21 24 33.7	39 10 30	A ruddy * 11 m in midst of a beautiful cluster of stars 16...18 m; 8' diam; not very comp; C troublesome.	207
		47.4	9 4	A rich fine cluster of at 11...16 m; it fills field; but the most comp part is about 6' in extent. The middle of the cluster taken, but no particular star fixed upon. [N.B. This and the former obs disagree in the minute of RA, this giving 23, the other 24. The latter is probably right, agreeing better with my Father's determination.]	384

No.	Synonyma.	R. 1850-6.	N.P.D. 1850-6.	Description and Remarks.	Sweep.
2125 M. 2		^h ^m ^s 21 24 59.6	[°] ['] ["] 51 34 11	A fine large globular cluster; it shines out between the clouds, and I see the stars of which it consists; and the determination of its place is good, though there is not a star now to be seen with the naked eye for clouds. (See fig 88.)	81
		40.0	91 34 18	A most superb cluster; round; stars e S; 12, 13, 14 m; they are evidently globularly arranged, and not internally condensed towards the centre more than the spherical form would make them appear to be; but in the middle they blend into a blaze of light. It is like a heap of fine sand. With 9 inches aperture I can just see the stars; with 6 it is resolvable.	258
		...	35 ±	A most glorious cluster of stars 15 m compressed up to a blaze. Its most crowded part takes 6" to pass the wire, but there are straggling stars, although few, of the same size as the rest. There must be thousands of them. The total light of the cl not exceeding a star 6 m, it follows that several thousand stars 15 m = 1 of 6 m.	96
2126 M. 39		21 26 7.8	42 18 52	A $\approx$ 7 m, one of a large loose cluster of stars 7....10 m; very coarsely scattered, and filling many fields.	209
2127 Nova.		21 27 57.8	44 45 3	The chief star (9 m) in a cluster of the 8th class. The double $\approx$ No. 1660 of my fourth catalogue belongs to this cluster.	210
2128 M. 50		21 30 41.5	113 55 26	Fine cluster; irreg R, with two projections A, B, at its northern side. (See fig 90.) A is directed from the central brightness and consists of 3 or 4 bright stars 12 m; its position taken with microm = 350° 41; B originates in the preceding side of the centre, and is directed in a position 331° 7 in a line not passing through the centre: diam = 6', stars = 12 m; fine object; has a $\approx$ 9 m preceding it (2 or 3 diameters by diagram).	299
2129 Nova.		21 38 8.4	36 9 35	A small, poor, but neatly defined cluster of stars 10....12 m; with appendages n p at some distance.	212
2130 VII. 40		21 38 20.3	37 5 2	A star 9.10 m of a ruby red colour in an oval annulus of small stars 4' diam.	284
2131 IV. 75		21 39 2.2	24 40 41	A very coarse triple star involved in a nebulous atmosphere; a curious object. The neb is e F and graduates away.	201
		4.7	40 17	Three stars in a nebula. Pos of A and B = 296° 3, Δ RA = 8° 0; pos of A and C = 46° 3, Δ RA = 8° 0; the place is that of A.	294
2132 II. 261		21 40 20.6	68 37 4	F; R; v g 1 b M; 30"; r	166
		21.5	37 44	v F; irreg R; 40"; r	50
2133 Nova?		21 41 21.7	60 49 46	Strongly suspected neb, or a v F double star with nebosity. Has a $\approx$ 11 m n p.	177
2134 VII. 66		21 41 51.0	24 58 57	The chief star in the s f part of a large, pretty rich, loose cluster of st 12....14 m; diam 10"; has more than one $\approx$ 10.11 m in it.	221
2135 III. 432		21 45 56.7	87 51 33	F; R; p L; 46"; v g 1 b M.	295
		57.7	51 5	p F; S; R; p s b M	95
		58.8	51 8	e F; p L; b M; a glorious night	94
2136 VIII. 67		21 48 56.7	28 11 31	One star 8 m (place taken), 4 = 10 m, 2 = 11 m, and a few smaller.	217
2137 III. 930		21 50 10.6	107 19 11	Suspected, but the state of the air is most unfavourable	37

No.	Synonym.	R 1850-9.	N.P.D. 1850-9.	Description and Remarks.	Sweep.
2138 III. 692		21 51 52.1	104 5 16	The faintest thing imaginable	10
		...	5 41	vF; E; PD only a rude approximation	34
		...	5 53	vF; R; v g b M; r; 90"	5
2139 II. 247		21 52 25.5:	73 5 23	R; g b M to a nucleus; has a * 80° s p, dist 90 ... 100"	11
		31.2:	4 19	p B; R; g b M; 60 ... 90". [N.B. The right ascensions in these early sweeps cannot be relied on.]	12
		34.4	4 24	B; R; p s b M; 20"; equals a * 10 m.	32
2140 III. 693		21 52 46.6	111 22 2	vF; S; R; 1 b M; the first of 2	209
2141 Nova.		21 52 52.7	35 59 25	The chief * 9 m of a v L loose clustering group which fills two fields and is pretty rich of large stars.	212
2142 II. 595		21 52 56.1:	109 43 51	e F; p L; R; the RA may err 10°	285
		59.4	44 5	vF; p L; R; p g 1 b M; 50"	297
2143 II. 1		21 53 11.0	111 37 26	p B; p L; v m E; position = 64° 3; p a v 1 b M; 2' long	299
2144 Nova.		21 53 28.6	111 17 36	vF; p L; irreg R; v g 1 b M; the second of two	299
2145 Nova.		21 55 14.3	80 0 0	A coarse straggling cl. Stars 9.10 m	14
2146 II. 599		21 55 52.8	49 46 8	vF; 1 E; S; v g 1 b M; 15"	183
2147 VII. 53		21 58 30.4	44 20 18	A * 10 m about the centre of a fine L rich cl; stars 9 ... 12 m; fills field.	210
		31.0	20 17	Place of * 10 m near the middle of a fine L p rich cluster; 50 stars from 10 m to 13 m counted. It fills field. Moon full.	209
2148 Nova.		21 58 35.5 n	62 43 0:	e F; R; b M; ill-defined; a v F double star 45° n p 4' dist points just to it.	103
2149 II. 207		22 0 16.9	59 29 20	B; R; 36"; g b M.	199
2150 II. 897		22 0 56.7	107 28 41	No description	37
2151 III. 862		22 3 0.4	49 49 36	e F; S; E; among 3 stars, with which however it seems not connected.	183
2152 III. 951		22 4 39.5	107 54 31	vF; R; b M; 20"	57
2153 II. 606		22 5 36.0	45 29 43	A most e F nebulous appearance, which is probably only a few minute stars. No other near.	204
2154 VIII. 63		22 6 30.6	33 34 23	A * 10 m, the chief of a p compact cluster of 15 or 20 stars 10 ... 17 m. One, 11 m, is of a ruby colour.	211
		31.1	33 45	A poor cl. South of the chief * is a ruby star 10 m. (N.B. These ruby stars often occur in clusters.)	212
2155 VIII. 75		22 8 36.4	40 57 50	A double * in a very loose straggling cl which more than fills the field.	207
2156 III. 932		22 8 31.2	106 25 43	vF; R; v g b M; has * 13 m south, at a dist from edge = 1 diam by diagram.	274
2157 VI. 29		22 8 55.4	36 30 57	A Milky Way cluster. Stars 14 ... 15 m. It is more crowded than the Milky Way, so as to run up to a condensed but faint mass of light.	384
2158 III. 933		22 11 11.3:	106 38 11:	e F, but certainly seen; p L; vision v bad	57
		15.7	37 43	p F; 1 E; g p m b M; 20"	274
		17.2	36 57	vF; R; but hazy. In occasional glimpses p B	273
2159 Nova.		22 14 19.0	32 45 32	The chief * of a coarse p rich cluster which fills the field. Stars 10 ... 15 m.	215

No.	Synonym.	R 1850-0.	N.P.D. 1850-0.	Description and Remarks.	Sweep.
2100 II. 284		22 18 8.5: 74 43 3		F; R; g b M, to a bright point	11
		12.7: 42 59		F; irreg R; b M; near a v F double * and one large *	12
2161 Nova.		22 18 33.5 33 1 32		Large, coarse, not extremely poor, the stars scattered and 10...16 m.	215
2162 Nova.		22 19 29.1 61 45 56		v F; R; 12"....15"; among stars	177
2163 VII. 41?		22 21 10.2 38 2 55		A Milky Way straggler; a poorish cluster of stars 12....13 m	564
2164 Nova.		22 21 51.5 104 53 37		F; p L; a strong suspicion; almost sure	273
		52.2 53 8		v F; R; v g l b M; 20"; twilight commencing	274
2165 IV. 31		22 23 15.6 104 59 37		F; p L; R; v s b M to a S, F, R nucleus; diam 2'; has a c s f in pos 352° 5 by micr; dist 3'.	273
		15.7 60 23		F; E; s b M; twilight commenced	274
		16.7: 59 51		F; R; b M; 15"; by obs RA = 22° 16' 7, but this is an obvious mistake.	37
		18.5 58 57		F; S; R; v s b M to a * 14 m.	373
2166 Nova.		22 23 31.3 59 54 58		v F; R; v g b M; 12"; fog coming on.	178
		40.3 54 16		v F; R; v l b M; 20". Both obs are correctly reduced, and their difference in RA has probably arisen from a mistake in one or other of the moveable wires for the fixed.	177
2167 II. 476		22 25 15.5 101 13 15		v F; p L; b M; 2'	34
		20.0 13 38		p F; p L; R; g l b M; diam 4" of time	86
		20.1 15 16		c F; hardly discernible	10
		21.0 14 13		F; R; v g b M; r; 2'	9
		22.1 14 12		c F; p L; R; g b M; 40" or 50"; it precedes a double * 43° 5 and is 1' north of it.	372
2168 II. 428		22 25 31.9 85 18 18		Not v F; S; p s b M	94
		34.3 18 46		p B; S; R; p s b M	95
2169 III. 180?		22 26 14.3: 70 33 ±		No PD obtained for clouds, but found by working list; c F ..	50
2170 III. 237		22 28 19.9 69 15 7		p F; irreg R; v g v l b M; 15....20"	290
2171 Nova.		22 29 2.1 80 20 30		v F; R; v g l b M; 20"	305
		3-2 20 19		c F; E in parallel	15
		3-8 20 20		c F; e in parallel; 60" l, 40" br	13
		... 20 19		c F; l E; b M; extended in parallel.	14
2172 I. 53		22 29 17.4 56 28 46		v B; p L; s m b M; E 70° n p to s f; 90" l, 30" br. If I. 53, the working list is 9' out in P.D.	105
		... 30 ±		B; m E; p s b M; r; 30" l, 12" br; has another nebula 14° 5 following; pos about 55° s f, n p.	168
2173 II. 233		22 29 18.1 67 4 36		B; S; m E in pos = 163° 0 by microm; v s m b M to a * 11 m	166
		18.6 5 7		p B; S; m E; s b M; pos about 70° n p to s f; the preceding of 2.	250
2174 III. 166		22 29 31.9 56 27 9		c F; l s n f from I. 53; pos by microm = 61° 8; Δ RA = 14° 5.	168
2175 II. 234		22 29 58.3 67 5 6		F; S; E nearly in parallel; v g l b M	166
		41.6 5 27		v F; m F in parallel; 60" l; the following of two and a third suspected.	250

No.	Synonym.	Alt 18500.	N.P.D. 18500.	Description and Remarks.	Sweep.
2176	Nova.	^{h m s} 22 51 28.4	^{° ' "} 79 52 0	e F; p L; 60" l, 30" br; a certain obs.	304
		...	.....	Viewed; e F; about a radius of the field (= 7½") n p ‡ Pegasi.	305
2177	Nova.	22 33 5.4	33 29 23	A star 9.10 m, chief of a p rich, v L, very coarse cluster.	211
2178	II. 705	22 34 0.1	29 36 27	B enough to be noticed and caught in sweeping in full moon- light, with the ☾ on merid; p g b M; R; no nucleus seen.	218
2179	II. 442	22 35 41.0	91 3 18	v F; S; R; p s b M; 15"	256
		42.2;	2 55	p F; R; 25"; clouds interfered with the R A obs which may err 2° or 3°.	371
2180	III. 477	22 37 3.1	101 54 16	e F; R.	10
		5.5	54 21	v F; p L; R; v g v l b M	373
		6.1	53 57	v F; p L; R; s b M, very dilute at borders	374
		6.9	53 7	e F; R; 26"	372
		...	53 53	F; R; 1' diam; no other near	9
2181	II. 598	22 38 34.0	113 11 26	p B; 1 E; g b M; 20"	299
		35.2	11 34	p B; R; b M; 15"	296
		35.6	11 51	p F; R; v g b M; 30...40"; several small stars near	370
2182	VIII. 77	22 39 28.1	32 42 28	A L, p rich, v coarse cl of stars 9.10 m and below. (No particu- lar * taken.)	211
		72.0	48 56	A double s, the chief of a fine, p rich, L cluster, 10' diam; stars 9...13 m.	214
2183	III. 216	22 41 26.4;	79 16 59	F; R; g b M; a star precedes	15
		32±	17 30	p B; R; 20"; has a * 11 m near. The preceding of two neb. The * by diag is 1 radius of the neb n p its edge.	304
2184	III. 217	22 41 32.9	79 12 5	p B; R; the following of two.	303
		39.5;	12 5	p B; S; R; p g b M	304
2185	II. 443	22 41 52.0	92 26 43	p F; R; p s b M; 50...70"; has a * n p; pos by microm = 350±3.	238
		52.8	26 5	p B; R; s b M to a * 13 m; 25". It has a * 12.13 m, 1' north	371
2186	II. 702	22 42 37.0	111 30 26	p B; R; g b M; 20...30"	299
		38.7	30 22	p B; irr R; p g b M; 30"	296
		39.1	30 46	Not v F; 1 E; g b M; 60" l, 40" br	370
2187	II. 453	22 42 46.7	96 27 24	e F; R; v g b M; sky dull.	184
		48.6	27 48	No description.	186
2188	Nova.	22 43 20.2	38 43 24	A double star, the last of a poor cluster of about a dozen stars	265
2189	Nova.	22 43 39.9	89 48 24	p F; irreg R; b M; 60"; r	53
		41.6	48 31	p F; R; g b M; 30"	255
2190	VII. 43	22 47 32.3	30 4 16	A S cluster of small stars 12 m, diverging in a fan shape; a * 10 m follows.	214
		35.5	5 3	A * 10 m in a cluster of v S stars 15...18 m; p rich; v g b M. A * 8 m is 2' south.	213
2191	III. 745	22 48 4.9	33 47 46	A large patch of the Milky Way, consisting of stars so small as to be quite nebulous. If this be not III. 745, I find no other.	211

No.	Synonym.	A.R. 1830-0.	N.P.D. 1830-0.	Description and Remarks.	Sweep.
2192 III. 576		$22^{\circ} 46' 50''$	$54^{\circ} 32' 13''$	F; S; R; b M; 12". A double $\ast$ p points back somewhat n of the neb.	108
		$22^{\circ} 46'$	$54^{\circ} 36'$	e F; p L; R; a coarse double $\ast$ 6 m precedes a little to south. Hurried obs.	105
2193 Nova.		$22^{\circ} 49' 6''$	$30^{\circ} 54' 58''$	VIII class; pretty compact, poor cluster; stars 9...11 m....	213
2194 III. 465		$22^{\circ} 40' 29.7''$	$77^{\circ} 47' 19''$	e F; R; b M	15
		34.3	$46' 25''$	v F; R; 15"; has a double $\ast$ foll.	305
		...	$46' 45''$	e F; S; R; precedes a neat D $\ast$ 3"	304
2195 III. 243		$22^{\circ} 49' 45.7''$	$64^{\circ} 45' 20''$	F; E in parallel; g b M; 60" l, 30" br	167
		...	$48' \pm$	Viewed in place; v F; L; irreg fig; r	172
2196 Nova.		$22^{\circ} 50' 20.2''$	$36^{\circ} 33' 31''$	A large oblong cluster which fills two fields. Place that of the double star L. 1557 of my fifth Catal.	384
2197 II. 450		$22^{\circ} 51' 10.9''$	$103^{\circ} 42' 53''$	Irreg R; p F; s b M almost to nucleus, r. The northern of a double neb. (See fig 75.)	9
		12.5	$42' 41''$	F; R; p s b M, rather the brighter of 2	375
2198 II. 451		$22^{\circ} 51' 11.4''$	$103^{\circ} 44' 28''$	p F; irreg R; s b M almost to nucleus, r; the southern of a double neb.	9
		12.5	$44' 21''$	F; R; p s b M	373
		...	$44' 26''$	The southern of a double nebula	10
2199 II. 251		$22^{\circ} 51' 38.5''$	$74^{\circ} 55' 23''$	p B; L; v g b M; E pos s 5" n p to s f.	11
		35.4	$56' 11''$	No description	175
2200 II. 590		$22^{\circ} 52' 48.4''$	$60^{\circ} 9' 8''$	Hardly visible for C, but sure of object	108
		48.0	$9' 18''$	v F; v S; p s b M	295
2201 II. 212		$22^{\circ} 52' 51.8''$	$60^{\circ} 46' 10''$	B; L; 1 E; p g b M; 60"; has a stellar point in the centre ..	178
2202 III. 210		$22^{\circ} 53' 27.2''$	$74^{\circ} 56' 1''$	No description. The first of 2	175
2203 III. 211		$22^{\circ} 53' 36.2''$	$74^{\circ} 56' 38''$	No description. The second of 2	175
2204 III. 230		$22^{\circ} 54' 41.6''$	$82^{\circ} 1' 59''$	F; S; R; v s m b M; equals a $\ast$ 12 m with a v F wisp about it. At first seems a star.	281
2205 I. 55		$22^{\circ} 56' 24.0''$	$78^{\circ} 35' 19''$	p B; irreg R; r; I see 2 or 3 stars in it; E between 2 stars. (See fig 63.)	14
		26.0	$35' 30''$	B; m E; pos by micr = $192^{\circ} 0'$; p g m b M; has a $\ast$ 12 m n p; a large $\ast$ s, and one or two 15.16 m in or near the middle.	304
		26.9	$35' 35''$	p B; m E, pos by micr = $11^{\circ} 8'$ (= $191^{\circ} 8'$); 2' l, 30" br; between 2 small stars. Has two v S stars in it.	305
		28.8	$35' 50''$	p F; b M; E in meridian between 2 stars; 90" l, 40" br	13
2206 Nova.		$22^{\circ} 57' 8.7''$	$87^{\circ} 22' 23''$	v F; E; p s b M; 26" l, 8" br	295
2207 Nova.		$22^{\circ} 57' 58.3''$	$56^{\circ} 48' 46''$	v F; S; R; b M; 12"; has a $\ast$ 10 m, 5' p in same parallel ..	168
2208 III. 558		$22^{\circ} 59' 27.3''$	$106^{\circ} 32' 16''$	e F; v L; 2 or 3'; the faintest thing imaginable; half way between two coarse double stars in same parallel.	307
2209 III. 203		$23^{\circ} 0' 36.0''$	$72^{\circ} 45' 23''$	e F; E like the tail of a comet; 1 b M	11
		36.8	$44' 13''$	v F; m E; pos $45^{\circ} 8'$ n f to s p; 4' l, 1' br	92
2210 III. 184		$23^{\circ} 2' 55.2''$	$93^{\circ} 5' 3''$	Not v F; v S; R; b M; well observed	96
		58.8	$3' 55''$	Not v F; R; g b and s m b M to a $\ast$ 15 m	371
2211 II. 2		$23^{\circ} 2' 56.3''$	$119^{\circ} 28' 9''$	F; R; b M; 30"; has a $\ast$ 10 m, 16" n p; 4' distant	292

No.	Synonym.	R 1833-6	N.P.D. 1830-6	Description and Remarks.	Sweep.
2212	Nova.	$\begin{smallmatrix} h & m & s \\ 23 & 3 & 14.3 \\ & & 15.5 \end{smallmatrix}$	$\begin{smallmatrix} h & m & s \\ 77 & 59 & 19 \\ & & 59 & 19 \end{smallmatrix}$	e F; seems to have a ω in centre e F A fan-shaped cluster composed of two principal lines of stars drawing to one about 2' 1; pos 245° 8 by microm.	15 14 214
2213	VII. 44	$\begin{smallmatrix} h & m & s \\ 23 & 4 & 4.0 \\ & & 10.6 \end{smallmatrix}$	$\begin{smallmatrix} h & m & s \\ 30 & 21 & 1 \\ & & 21 & 18 \end{smallmatrix}$	A v pretty fan-shaped cluster of p B close stars in two lines with other smaller to N. A ω 10 m taken. Another 11"m dist 19° 0; pos = 244°.	212
2214	III. 220	$\begin{smallmatrix} h & m & s \\ 23 & 4 & 16.5 \\ & & 16.6 \\ & & 18.3 \end{smallmatrix}$	$\begin{smallmatrix} h & m & s \\ 78 & 14 & 20 \\ & & 14 & 30 \\ & & 15 & 0 \end{smallmatrix}$	p B; p L; R; g b M; 30" p B; p L F; R; v g l b M.	304 305 13
2215	II. 229	$\begin{smallmatrix} h & m & s \\ 23 & 5 & 56.4 \\ & & 58.0 \end{smallmatrix}$	$\begin{smallmatrix} h & m & s \\ 86 & 23 & 43 \\ & & 23 & 19 \end{smallmatrix}$	F; S; R; b M; the s p of 2 v F; irreg R; b M; the s p of 2; pos by microm 45° 0	95 302
2216	II. 230	$\begin{smallmatrix} h & m & s \\ 23 & 6 & 5.4 \\ & & 7.0 \end{smallmatrix}$	$\begin{smallmatrix} h & m & s \\ 86 & 23 & 23 \\ & & 23 & 19 \end{smallmatrix}$	v B; L; E, 10° n p to s f; 80"; the n f of 2; a ω 10 m s f B; m E; pos about 5° n p to s f; 80" long; the n f of 2, pos of the other 228° 0.	95 302
2217	Nova.	$\begin{smallmatrix} h & m & s \\ 23 & 6 & 7.8 \end{smallmatrix}$	$\begin{smallmatrix} h & m & s \\ 67 & 14 & 6 \end{smallmatrix}$	F; S; R; p s b M; 12"	166
2218	Nova.	$\begin{smallmatrix} h & m & s \\ 23 & 6 & 35.7 \end{smallmatrix}$	$\begin{smallmatrix} h & m & s \\ 71 & 56 & 43 \end{smallmatrix}$	The n p of 2	92
2219	Nova.	$\begin{smallmatrix} h & m & s \\ 23 & 6 & 48.2 \end{smallmatrix}$	$\begin{smallmatrix} h & m & s \\ 71 & 57 & 43 \end{smallmatrix}$	p B; R; 20"; the s f of 2	92
2220	II. 235	$\begin{smallmatrix} h & m & s \\ 23 & 6 & 59.7 \end{smallmatrix}$	$\begin{smallmatrix} h & m & s \\ 93 & 18 & 52 \end{smallmatrix}$	p B; R; a bright double ω f	96
2221	Nova.	$\begin{smallmatrix} h & m & s \\ 23 & 7 & \pm \end{smallmatrix}$	$\begin{smallmatrix} h & m & s \\ 78 & 21 & \pm \end{smallmatrix}$	F; R; b M; place very loose; two or three more nebulae sus- pected in the neighbourhood.	174
2222	III. 221	$\begin{smallmatrix} h & m & s \\ 23 & 7 & 14.4 \\ & & 14.7 \\ & & 14.7 \\ & & 16.8 \end{smallmatrix}$	$\begin{smallmatrix} h & m & s \\ 77 & 37 & 31 \\ & & 37 & 50 \\ & & 36 & 49 \\ & & 39 & 40 \end{smallmatrix}$	F; R; v g b M; 30" p B; p L; R. Has a ω 16 m in the centre. The n p of 2 F; R; b M; 30"; the n p of 2, the place by reference to the other F; R; v g b M; place very uncertain by estimation from the other.	175 304 15 16
2223	III. 222	$\begin{smallmatrix} h & m & s \\ 23 & 7 & 19.7 \\ & & 22.9 \\ & & 24.0 \\ & & 25.8 \end{smallmatrix}$	$\begin{smallmatrix} h & m & s \\ 77 & 44 & 19 \\ & & 43 & 16 \\ & & 44 & 10 \\ & & 44 & 30 \end{smallmatrix}$	p B; S; R; s m b M; a B ω near; the s f of 2; the RA sup- poses a mistake in the wire. p B; R; p s b M; 20" p B; p L; R; has a ω 16 m in centre. The s f of 2 e F; b M; the RA supposes a mistaken wire	15 175 304 13
2224	II. 467	$\begin{smallmatrix} h & m & s \\ 23 & 7 & 20.0 \end{smallmatrix}$	$\begin{smallmatrix} h & m & s \\ 84 & 14 & 9 \end{smallmatrix}$	B; S; R; p s b M; 13"	302
2225	III. 182	$\begin{smallmatrix} h & m & s \\ 23 & 8 & 44.8 \end{smallmatrix}$	$\begin{smallmatrix} h & m & s \\ 72 & 14 & 8 \end{smallmatrix}$	F	92
2226	II. 236	$\begin{smallmatrix} h & m & s \\ 23 & 9 & 22 \pm \end{smallmatrix}$	$\begin{smallmatrix} h & m & s \\ 93 & 34 & 7 \end{smallmatrix}$	p B; S; R. RA from working list	96
2227	II. 431	$\begin{smallmatrix} h & m & s \\ 23 & 10 & 5.5 \\ & & 10 & 9.3 \end{smallmatrix}$	$\begin{smallmatrix} h & m & s \\ 98 & 28 & 44 \\ & & 30 & 18 \end{smallmatrix}$	F; R; l b M; 15"; sky not good p B; R; p s b M; 15"; RA doubtful 2 or 3 seconds	184 186
2228	I. 104	$\begin{smallmatrix} h & m & s \\ 23 & 10 & 18 \pm \end{smallmatrix}$	$\begin{smallmatrix} h & m & s \\ 95 & 23 & 17 \end{smallmatrix}$	v F; L; m E; night unfavourable	372
2229	Nova.	$\begin{smallmatrix} h & m & s \\ 23 & 11 & 19.9 \end{smallmatrix}$	$\begin{smallmatrix} h & m & s \\ 82 & 31 & 9 \end{smallmatrix}$	e F; e S; sky clear	281
2230	II. 439	$\begin{smallmatrix} h & m & s \\ 23 & 11 & 37.4 \\ & & 39.5 \end{smallmatrix}$	$\begin{smallmatrix} h & m & s \\ 82 & 44 & 28 \\ & & 45 & 10 \end{smallmatrix}$	B; p L; R; p s b M p B; R; b M; 30". PD inaccurate	280 89
2231	III. 455	$\begin{smallmatrix} h & m & s \\ 23 & 11 & 54.1 \end{smallmatrix}$	$\begin{smallmatrix} h & m & s \\ 82 & 31 & 39 \end{smallmatrix}$	p F; R; p s b M	281
2232	II. 259	$\begin{smallmatrix} h & m & s \\ 23 & 11 & 56.6 \\ & & 58.8 \end{smallmatrix}$	$\begin{smallmatrix} h & m & s \\ 73 & 42 & 53 \\ & & 41 & 55 \end{smallmatrix}$	B; R; s b M; 60" p B; R; b M; 30"	11 92

No.	Synonym.	R 1850-0.	N.P.D. 1850-0.	Description and Remarks.	Swarp.
2233	II. 440	23 12 6.7	52 42 48	B; R; pL; p s b M	280
		7.0	42 10	p B; R; b M; 30"; PD inaccurate	89
2234	II. 441	23 13 5.3	52 2 29	A double star with some singular nebulous appendage. The stars are 14 m.	281
2235	IV. 52	23 13 20.3	29 43 1	A star 9 m with a v F nebulous atmosphere or a nebula rather excentric towards the s p side.	214
2236	II. 600	23 13 56.7	50 3 35	v F; E; v g b M; 40" L, 20" br	180
		50.1	5 40	F; L; m E from a bright to a faint star; v b M; 2 1/2", 20" br. See fig. 60.	183
2237	Nova.	23 16 21.5	75 39 23	F; R; g b M; 40... 60"	11
		...	38 45	e F; R; g b M; 30"; appears as M. 71 does in the 7-foot reflector with the double eye-piece.	1
2238	M. 52	23 16 43.9	29 20 12	A ruddy star 9 m in the p part of a p rich irreg cl of stars 13 m, all separate, 6' diam; a v little more comp in the s part.	218
2239	III. 212	23 17 22.4	76 43 26	v F; S; R; p s b M; 13"	173
2240	Nova.	23 17 24.2	63 54 0	F, v S; p s m b M; 6"; almost stellar; a star 10 m p; dist 1' in parallel.	172
2241	IV. 18	23 17 42.1	48 24 24	A fine PLANETARY NEBULA. Diameter 12"; with 240 beautifully defined, light, rather mottled, and the edges the least in the world unshaped. It is not nebulous, but looks as if it had a double outline, or like a star a little out of focus. A perfect circle. Has a star near; pos 68° 1, well measured over the centre of the nebula. See fig 45.	183
		43.2	23 33	v D; R; much whiter; 8 or 10" diam. It has no haze at the edges, but if it be not enveloped in an e F nebulousity (perhaps arising from glare) and also the star 13 m whose pos is 61.9 and $\Delta R A = 4^{\circ} 0$. The light is a very little mottled and not absolutely planetary. It is a ≈ 7 m. (N.B. These satellites of planetary nebulae ought to be especially attended to.)	180
		44.0	23 53	Diameter in R A = 2° 0 of time. The attendant star is double A = 12 m; B = 13 m, pos of A = 58° 5; $\Delta R A$ from centre = 4° 0. The nebula is not perfectly round; light equal, but a very little hazy at the edges.	264
		44.3	23 40	Exactly R; 2° 5 of time = diam in R A. Has a ≈ 13 m pos 69° 0; dist 30"; the light of the disc is perfectly equable, and equals a star 8 m.	185
		46.2	23 40	Exactly R; = a ≈ 8 m; a ≈ 13 m n f; pos = 63° 6 by microm; dist = 30". [N.B. The great discordance in the measured positions of the satellite-star seems to arise from the star being double, and taken for a single one. Whenever this occurs, it is a source of error, and should be most carefully guarded against in all future observations of this interesting object.]	190
2242	III. 226	23 18 41.3	78 28 39	p B; R; v s b M, almost to a star.	13
		44.9	28 0	p B; S; v l E; b M; has a ≈ 8 m p	305
		45.0	28 10	p B; S; R; a star 10 m precedes in parallel near the neb	504
		45.8	29 0	p B; S; R; 20"; m b M, with a hazy border. Approaching to a stellar, or a planetary character. [A mistake in the wire presumed in the transit observation.]	15

No.	Synonym.	R 1850-9.	N.P.D. 1850-9.	Description and Remarks.	Sweep.
2243	Nova.	23 19 18.6	82 9 4	F; R; g b M; 30". The p of 2	261
2244	Nova.	23 19 28.6	82 9 49	v; F; R; g b M; 20"; the f of 2	261
2245	II. 226	23 19 57.8	68 30 37	F; v R; p L; 1 b M; very symmetrically situated in the southern part of a lozenge of 4 stars, on the longer diagonal, forming an elegant object. See fig 85.	91
		59.1	30 28	v F; R; v g b M. Occupies the southern half of a lozenge of four stars, its centre being just upon the longer diagonal.	166
2246	III. 860	23 20 21.1	58 35 ±	S; R; query if not stars; R A by working list. P D rough.	100
2247	II. 242	23 20 21.2	73 37 53	c F; S; it is a v F neb of third class	92
		22.5	38 3	v F; R; g b M; 20 30"; near a double *	11
2248	III. 426	23 21 50.1	87 2 2	c F; L; C0 60"	295
		...	2 ±	c F; L; 50 2'	262
2249	VIII. 69	23 22 3.7	41 40 2	A bright coarse cluster 7' diam; seen in full. Place of the chief * = 7 m; about a dozen 9 11 m, and many 12 14 m	260
		3.9	47 54	A poor scattered cluster. Place of a * 8.9 m in preceding part. Full C on meridian; so that I could not see the small stars.	208
		...	49 20	A * 6 m in the middle of a cluster of about 50 stars coarse and straggling.	267
2250	III. 218	23 23 50.0	75 5 31	c F; p L; forms a triangle with 2 at 10 m, near it	175
2251	Nova.	23 25 13.3	74 52 23	v F; v S; g b M; 10"; has a * 1' dist n f.	11
2252	Nova.	23 26 21.2	85 2 18	c F; hardly perceptible; a * 12 m precedes.	54
		21.3	2 28	c F. The s p of 2	55
2253	Nova.	23 26 30.3	85 58 58	v F, but brighter than the preceding.	95
2254	III. 579	23 26 34.6	46 37 28	c F; follows a * 9.10 m. (? if not an c F double *)	204
		36.7	37 50	c F; R; 20"; has a * 11 m, 45° n p; dist 25"	160
2255	VIII. 62	23 26 58.0	18 1 12	A * 8.9 m, the chief of a scattered cluster of 30 50 stars, 10 13 m. It more than fills the field.	378
		62.5	1 47	A poor and coarse cluster of large and small stars. The largest (= 9 m) taken.	228
		...	1 ±	A star 8 or 8.9 m, the chief of a poor and diffused cluster of small stars.	229
2256	II. 244	23 27 4.4	75 38 31	p F; R; p s b M; 15"	175
		...	37 ±	v F; R; g m b M; 20"; r; like a blotted star.	1
2257	Nova.	23 27 30.6	88 46 48	p B; S; R; p s b M; in field with 16 Piscium; a star 12 m near, s p; (dist = 1 diameter of neb by diagram).	295
2258	Nova.	23 27 47.8	90 38 40	Not c F; p L; 1 E; g b M; has a * 10 m exactly south, dist 2'	371
2259	III. 146	23 29 58.4	63 53 32	p F; R; b M; 20"	172
2260	II. 432	23 30 0.6	97 27 48	v F; L; R; v g b M; 60"	186
		2.5	27 32	p B; p L; p m E; irreg fig. Sky not quite clear.	184
		5.0	27 9	No description	185
2261	I. 110	23 30 7.5	103 53 56	c F; L; m E; sky quite clear	376
		9.4	53 53	Irreg R; g b M; 2' diam; r. I certainly see one star near the middle.	9

No.	Synonym.	At 18500.	N.P.D. 18500.	Description and Remarks.	Sweep.
2262	I. 111	^h 23 ^m 31 ^s 5.1	^e 103 ^r 14 ^u 26	pB; R; pgmbM; 40"	372
		6.2	13 53	pB; R; v s b M.	9
2263	Nova.	23 33 47.1	64 42 12	vF; a star 14 m with a nebulous brush extended towards the star, and on its s p side; position from the star by diagram = 250° or 260°. This disagrees with my Father's description of II. 208, which is said to be s f a star, but this may be a mistake for s p; but then also the RA disagrees 2m and the P D 6'. It can hardly, therefore, be the same object.	172
2264	II. 255	23 35 36.8	80 10 9	B; R; a B * f	15
		37.1	10 30	B; R; p s b M; 25"; a * f	305
		37.2	11 10	F; R; s b M; 20"; has a * f	89
		45.3:	10 30	B; R; g m b M; 60"; has a small * one diameter following. [N.B. The RA is good for nothing, as are all those in the early sweeps before the chronometer was used.]	16
		...	9 44	R; s m b M almost to a nucleus; has a * 1' dist, 20° n f'	14
2265	II. 256	23 35 41.9	81 0 38	pB; R; s b M; 20"; r	289
		...	0 5	pB; R; p s b M; 15"; has a * 15 m, dist 1'; pos = 153° S by microm.	305
		...	0 15:	F; S; R; b M	89
2266	Nova.	23 37 3.4	21 11 30	About a * 8 m is a very extensive space which I am certain is affected with nebosity.	226
2267	III. 427	23 37 53.2	87 8 53	Not vF; L; R; 40 or 50" diam	205
		57.4	8 26	Not cF; pL; R; 1 b M	49
		...	8 ..	pB; L; near 2 B stars 10 and 11 m	76
2268	II. 213	23 38 32.0	61 27 43	pF; L; v g b M; 70"; r	177
2269	III. 437	23 39 18.2	64 4 32	F; S; R; g b M; 12...15"	50
		...	5 ±	pF; S; R; 13"	502
2270	Nova.	23 40 3.4	86 46 2	vF; pL; R; v g b M; 40"; a * 13 m, 1' n	305
		...	46 14	vF; L; R; has a * 13 m north	302
2271	III. 854	23 40 34.3	59 57 45	pB; p s b M; 12"; query if not a F double * with neb	177
		36.6	57 41	vS; r; I am sure I see 2 stars; a suspicious object, possibly (not very probably) a nebulous D *	177
		37.1	58 3	B; v S; query if not 3 small stars close together	305
		37.6	57 55	B; S; R; perhaps a * or two in it. [N.B. The obs make the P D 59° 52' 55", but there is an obvious mistake of 5' in the reading off of the Index.]	102
		40.2	57 21	Query if not 3 or 4 stars and nebosity	101
2272	VII. 55	23 41 32.3	22 55 50	a v L, v coarse, rather poor clust of * 11...15 m. The most compact taken.	205
2273	Nova.	23 42 21.4	63 47 56	vF; S; irreg fig; appears by glimpses to contain a vF double *, but it is a nebula.	11
2274	II. 230	23 42 22.6	70 46 20	pB; R; b M; 25"	89
		26.5	43 33	pB; S; R; b M; the n p of two	49
2275	II. 261	23 42 43.6	70 48 20	pB; R; b M; has a v s m b M; dist 1' n f'	177
		48.0	50 15	pB; R; b M; has a v s m b M; dist 1' n f'	177

No.	Synonym.	R. 18200.	N.P.D. 18200.	Description and Remarks.	Swamp.
2276	Nova.	$\begin{smallmatrix} h & m & s \\ 23 & 43 & 0.5 \end{smallmatrix}$	$\begin{smallmatrix} h & m & s \\ 74 & 41 & 23 \end{smallmatrix}$	A cluster of scattered stars 10 m	11
2277	II. 831	$\begin{smallmatrix} h & m & s \\ 23 & 43 & 32.6 \end{smallmatrix}$	$\begin{smallmatrix} h & m & s \\ 39 & 40 & 20 \end{smallmatrix}$	The faintest conceivable	102
		36.2	41 $\pm$	cF; s p a * (by diagram * 70° n.f. dist 1 diam of neb from edge)	104
		...	42 $\pm$	cF; R; near a *	178
2278	III. 231	$\begin{smallmatrix} h & m & s \\ 23 & 44 & 37.3 \end{smallmatrix}$	$\begin{smallmatrix} h & m & s \\ 83 & 4 & 9 \end{smallmatrix}$	F; R; bM	281
		39.0	4 3	pB; R; p s b M; 20"	280
2279	III. 232	$\begin{smallmatrix} h & m & s \\ 23 & 44 & 46.0 \end{smallmatrix}$	$\begin{smallmatrix} h & m & s \\ 83 & 3 & 53 \end{smallmatrix}$	pB; R; p s b M; 20"	280
		47.3	3 49	pF; R; p s b M; the brightest of 3	281
2280	Nova.	$\begin{smallmatrix} h & m & s \\ 23 & 45 & 6.3 \end{smallmatrix}$	$\begin{smallmatrix} h & m & s \\ 83 & 4 & 19 \end{smallmatrix}$	F; S; R; the faintest of 3	281
2281	III. 233	$\begin{smallmatrix} h & m & s \\ 23 & 45 & 13.0 \end{smallmatrix}$	$\begin{smallmatrix} h & m & s \\ 82 & 58 & 4 \end{smallmatrix}$	pB; p L; R	281
		13.6	58 18	pB; p L; g b M; 40"	280
2282	II. 468	$\begin{smallmatrix} h & m & s \\ 23 & 46 & 37.3 \end{smallmatrix}$	$\begin{smallmatrix} h & m & s \\ 83 & 1 & 34 \end{smallmatrix}$	B; S; R; p s b M; among three stars	300
		37.3	1 44	pB; S; E; p s b M; among three stars	302
		38.0	2 18	pB; R; b M; v; a * 7 m precedes 30' $\pm$	53
		39.3	2 18	pB; R; b M	94
2283	Nova.	$\begin{smallmatrix} h & m & s \\ 23 & 48 & 12.4 \end{smallmatrix}$	$\begin{smallmatrix} h & m & s \\ 29 & 33 & 44 \end{smallmatrix}$	v S and close cluster. One * 10 m with a great many very minute stars close to it.	216
		14.6	32 32	A p rich, S, condensed cl. One * 10 m, the rest 13 m	210
2284	VI. 30	$\begin{smallmatrix} h & m & s \\ 23 & 48 & 28.7 \end{smallmatrix}$	$\begin{smallmatrix} h & m & s \\ 34 & 13 & 48 \end{smallmatrix}$	A most superb cluster, which fills the field and is full of stars; g b M; but no condensation to a nucleus; at 11 ... 18 m. The place is that of a double *.	211
2285	VII. 36	$\begin{smallmatrix} h & m & s \\ 23 & 48 & 31.3 \end{smallmatrix}$	$\begin{smallmatrix} h & m & s \\ 29 & 43 & 52 \end{smallmatrix}$	A double * in the p part of a pretty rich cluster; diam 4'; at 12 ... 13 m; the f part most comp.	210
2286	Nova.	$\begin{smallmatrix} h & m & s \\ 23 & 49 & 13.3 \end{smallmatrix}$	$\begin{smallmatrix} h & m & s \\ 80 & 10 & 20 \end{smallmatrix}$	v F; v S. Query if not a star	303
2287	Nova.	$\begin{smallmatrix} h & m & s \\ 23 & 50 & 4.3 \end{smallmatrix}$	$\begin{smallmatrix} h & m & s \\ 30 & 53 & 43 \end{smallmatrix}$	A star 7 m, the chief of a v L coarse scattered but poor cl which fills the field. Stars 10 m.	213
2288	III. 466	$\begin{smallmatrix} h & m & s \\ 23 & 50 & 15.2 \end{smallmatrix}$	$\begin{smallmatrix} h & m & s \\ 80 & 12 & 53 \end{smallmatrix}$	cF; irreg fg; p L; 40"	303
2289	III. 867	$\begin{smallmatrix} h & m & s \\ 23 & 50 & 18.2 \end{smallmatrix}$	$\begin{smallmatrix} h & m & s \\ 87 & 18 & 43 \end{smallmatrix}$	cF; not v S	55
2290	II. 232	$\begin{smallmatrix} h & m & s \\ 23 & 50 & 45.7 \end{smallmatrix}$	$\begin{smallmatrix} h & m & s \\ 70 & 10 & 13 \end{smallmatrix}$	pB; S; R; b M; has a * 10 m 60° sp, dist 65"	91
2291	II. 10	$\begin{smallmatrix} h & m & s \\ 23 & 50 & 56.2 \end{smallmatrix}$	$\begin{smallmatrix} h & m & s \\ 76 & 8 & 26 \end{smallmatrix}$	F; S; E; irreg fg; 18"	175
2292	Nova.	$\begin{smallmatrix} h & m & s \\ 23 & 51 & 46.8 \end{smallmatrix}$	$\begin{smallmatrix} h & m & s \\ 40 & 13 & 40 \end{smallmatrix}$	A double * in a tolerable cluster in which is one star 9 m	207
2293	Nova.	$\begin{smallmatrix} h & m & s \\ 23 & 52 & 17.5 \end{smallmatrix}$	$\begin{smallmatrix} h & m & s \\ 84 & 42 & 9 \end{smallmatrix}$	v F; S; R; p s b M	302
2294	III. 835	$\begin{smallmatrix} h & m & s \\ 23 & 52 & 42.7 \end{smallmatrix}$	$\begin{smallmatrix} h & m & s \\ 59 & 31 & 30 \end{smallmatrix}$	cF; S; R; s b M; double; the s p of 2	178
		42.8	30 27	cF; very little more than a suspicion, and could not find the object again. [N.B. A diagram made at the time represents the two nebulae in their right position; therefore no doubt but the wire of the transit was mistaken.]	114
		...	30 51	cF; seen by glimpses in a fog	104
2295	III. 850	$\begin{smallmatrix} h & m & s \\ 23 & 52 & 44.3 \end{smallmatrix}$	$\begin{smallmatrix} h & m & s \\ 59 & 29 & 2 \end{smallmatrix}$	cF; a companion to III. 835; v doubtful	114
		45.3	29 57	cF; b M; like a blurred star	100
		46.2	31 10	cF; S; R; s b M	178

No.	Synonym.	R. 1850-0.	N.P.D. 1850	Description.	Remarks.	Sweep.
2296	H. MS.	h m s 23 53 37.4	77 58	"F" follows 2' of point a. Expected nebula. Father is	of it. It is a suspected	174
		39.3		"Suspected nebula." Verified v S, point a.	1 m p to another	175
		...	57 ±	"Suspected nebula." Verified the field by setting the telescope but it is so nearly a star as to be of a triangle.	ing found in the place of the first; possibly mistaken for the third	15
2297	II. 240	23 54 32.5	74 47 33	B; L; irreg R; v g b M; 2' e.	mm; no nucleus.	11
2298	III. 436	23 55 ±	83 35 18	v F; R		280
2299	Nova.	23 55 7.8	83 27 45	v F; p L; R; g b M		281
2300	II. 227	23 55 16.7	70 10 5	p B; m E; 1 b M; 2' 1, 20" n; pos 45° n f to s p by diagram.		91
2301	Nova.	23 55 47.5	85 44 40	B; S; m E; v s m b M; 12" 1, has a * p.		300
		...	...	Viewed; p F; E, follows the first and southern of 3 in a line.		302
2302	Nova.	23 56 1.1	22 16 20	The central part of what I am positive is an enormously L, but a F neb of a round figure, though I cannot trace its limits. The night exquisite. I swept often across it to be sure, but always returned to the same place. No doubt but can never be seen but in the best state of the air and sky. Diam 10" ±.		228
2303	Nova.	23 56 23.5	84 1 44	Not v F; S; R; 12"; a * 9 m n p		302
2304	Nova.	23 56 24.0	85 44 14	v F; S; g b M		302
2305	VIII. 29	23 56 29.8	111 39 30	A triangular group of about a dozen stars		258
2306	Nova.	23 56 45.3	85 43 40	v F; S; R; s b M; has a * n f		302
1	III. 568	0 0 2.0	86 19 35	&c. &c.		&c.

ERRATA AND ADDENDA.

Page 361, line 9, for 2500 read 2300

— 361 — 10 for 2000 read 1800

— 388 Obs. 536 for II. 880 read II. 280

— 379 — 344 for PD 52 50 56 read 53 10 56.

Omitted Nebula.—R.A. 13^h 56^m 23^s.6; PD 23° 21' 50"; v F; Sweep 546.

APPENDIX.

THE manner in which the observations whose results are above stated, have been performed, is to say, the manner and order in which the business of a sweep is conducted, having been stated at large in my catalogues of double stars, it will not be necessary to re-stipulate the particulars here; but it would not be right for me to lay before the Royal Society the present collection of reduced observations unaccompanied by some explanation of the manner in which the reductions have been executed, and how the numbers here set down as the mean right ascensions and north polar distances of objects for the epoch 1830, are concluded from the numbers registered at the moment of observation, especially since the method actually pursued for this purpose is materially different from that taken to reduce my earlier catalogues of double stars, being at once much more exact, and far less troublesome. This change has of course involved the necessity of a recalculation of all the sweeps which had been reduced on the original plan; and although this has proved a work of considerable labour, the advantage of the adoption of a uniform system throughout the reductions is more than an equivalent for the time and trouble it has cost—not to mention the detection of several errors in particular cases, and the satisfaction of a general verification of the great body of the former computations.

Every complete observation registered in the sweeping books contains the following particulars: 1st. The time, shown by a chronometer (of unknown error and rate), when the object passed one or other of the vertical wires of the eye-piece, or finally left the field, after which, though it might be recovered, and viewed and described at leisure, by withdrawing the tube from its bearing against the ladder, yet no further determination of time was practicable, other than a very rude one, by taking the transit of some small star, on the same parallel, and then temporarily fixing the tube in a new position, remote from the ladder, and noting the difference of right ascension between that star and the object, by their transits afresh across the wires so displaced.

2ndly. The wire across which the transit was observed is noted in the next place, and the first step in the process of reduction consists in applying to the

observed times of transit a reduction to the first wire, when not directly observed, founded on a knowledge of the interval between the wires and the extent of the range of the field of view, as also of the approximate polar distance of the object.

3rdly. The third datum given by observation is the reading off of the brass sector attached to the end of the tube, by the lateral microscope. The sector is graduated to degrees and minutes, and the seconds are estimated, which is easy, as each minute is nearly a tenth of an inch in length. Though I have no reason to apprehend any error in the graduations, or in the values of the degrees, minutes, &c., into which the arc of this sector is supposed to be divided, both are regarded as unknown elements, whose values, if necessary, might be investigated, but into which, by reason of the system adopted, there is no occasion to inquire, further than to be satisfied that their errors are of an order so small as not to bring into question the *identity* of an object.

These are the data furnished by observation for every object in a complete sweep; and I shall now explain how from these data, compared with the mean places of all those known objects which are to be found in authentic catalogues brought up to a given epoch, and which occur in a sweep, the mean places of all the *unknown* ones for the same epoch may be obtained, with the greatest degree of accuracy of which the system of observing is susceptible,—without the necessity of taking into direct consideration any uranographical or instrumental correction whatever,—and that in a manner which, as will appear, carries with it a moral certainty of eliminating (so far as they can be eliminated by any process) whatever errors may have been committed in the observations of the zero stars. In fact, if we consider all the corrections which we can possibly have occasion to apply to observations of this kind, whether arising from the uranographical reductions, (viz. precession, aberration, nutation and refraction,) or from instrumental mis-adjustment, such as extrameridional situation of the plane of the sweep, or its deviation from a vertical; error and rate of the chronometer; error of evaluation of the divisions of the sector, &c.; or, lastly, even from instability of the instrument itself, due to hygrometrical or pyrometrical causes, whose operation, though very irregular, is still to a certain extent gradual; we shall find that they are all functions of two quantities,—the time elapsed since a given epoch, or, which comes to the same thing, the

sidereal time at the moment of observation; and the inclination to the horizon of the line of collimation, or, which comes to the same, the polar distance of the object. Hence it follows that in all cases the mean R. A. of an object observed must necessarily be derived from the observed chronometer reading, (reduced to the first wire,) by adding to that reading a reduction (R) which is some certain function of these two quantities, and that the mean polar distances, also reduced to the same fixed epoch, will in like manner be had from the reading of the index arc or lateral sector, by adding thereto another reduction (r), which is also a function of the same quantities. We have therefore, if we call α and π the mean R. A. and polar distance of any object, t the time (by chronometer) of its transit over the first wire, and i the reading of index arc, two equations of this form:

$$\alpha = t + \text{funct.}(\alpha, \pi)$$

$$\pi = i + \text{funct.}(\alpha, \pi).$$

This form, however, is unsuitable to our purpose, the quantities α and π being themselves the object of inquiry; but it is easy to give the equations a more available form, if we consider, 1st, that α and π are never materially different, the former from t , the latter from $p + i$, where p is the polar distance corresponding to $i = 0$; and 2ndly, that we intend to have no concern at all with the *analytical form* of the functions involved, which, so far as our purpose goes, may be regarded as unknown or arbitrary. Denoting then by F and f , other forms of functions equally unknown with the former, we are at liberty to suppose our equations transformed as follows:

$$\alpha = t + F(t, i)$$

$$\pi = i + f(t, i)$$

Our attention must now be directed *not* to discover *à priori*, by theory, the analytical forms of the functions F, f ; but, *à posteriori*, from observation, to tabulate their values, or, in other words, to reduce their calculation to a simple process of interpolation between their observed values as concluded from the zero stars. To this end we must put the above equations under the form

$$F(t, i) = \alpha - t$$

$$f(t, i) = \pi - i$$

and putting $F(t, i) = R$ and $f(t, i) = r$, we must first ascertain the values of R, r from each of the zero stars observed, with the corresponding values of t and i given by observation, and then tabulate them by interpolation, for all the other values within the limits of the sweep.

With respect to the first of these operations it is very easy. For in the case of a zero star, α and π are given by the standard catalogue, brought up to the given epoch if required, and t and i are the actual readings off of the chronometer and index are, the former being merely reduced to the first wire, by an appropriate table, when that wire is not observed. The problem then is reduced to this,—given the values R, R', R'' , and r, r', r'' , &c., of two functions of t and i , of whose analytical form we are ignorant, to interpolate these functions, and tabulate their values for every value of t and i within certain limits. The principle on which this problem may be easiest and most generally resolved, as well as with the highest degree of probability which the case admits, is an extension of the method I have used for interpolating the angles of position of double stars. We may regard R and r as the third or vertical coordinates of two curved surfaces, of which t and i are respectively the first and second or horizontal coordinates. Having, therefore, obtained a number of corresponding values of the three coordinates, we have given so many points in each curve surface, or rather which *should* lie in such surface were all the observations free from error. Since that, however, is not the case, the surface, such as it theoretically ought to be, did we know its true form, will not pass *through* but *among* the points in question; and it must be our care so to describe it as to deviate as little as possible from them while yet preserving a seemly and moderate flexure in itself—at least if we have no reason to believe that jumps exist in the instrumental errors.

A graphical process which should require us to describe a curve surface through or among given points in space, would be difficult, but fortunately in the case before us the difficulty may be evaded. For the limits of a sweep in polar distance being only three degrees, the amount of flexure of either of our curve surfaces in the direction of the coordinate i will of necessity be trifling, and may be disregarded. The surface therefore will be one of a cylindroidal nature, in which the ordinate is of the form funct. (t) + funct. (i), so that if

we denote by A, B , and a, b , such functions of these respective variables, we shall have

$$\begin{aligned} R &= A + B \\ r &= a + b \end{aligned}$$

where A, a , are functions of t alone, and B, b , of i alone. Thus the interpolation of the functions R, r , is reduced to that of the functions A, B, a, b , each of which involving only one independent variable, the precepts given in my paper above alluded to, apply immediately to its interpolation, and enable us to tabulate its value with the greatest readiness.

The process which I have used throughout the reduction of the sweeps has been grounded on these principles, and may be thus summarily described.

1st. From the registered chronometer and index reading, compared with the standard catalogue adopted, deduce the reductions, in R. A. and N. P. D. of all the known stars which occur in the sweep, or the zero stars, as I have called them. By the reductions, I mean the quantities in time or in space which must be applied to the observed chronometer or index reading to produce the catalogued R. A. or N. P. D. for the epochs. These are the quantities R, R' and r, r' , &c.

2ndly. Take a piece of paper, divided into squares, either ruled or printed, of which every tenth line in both directions should be stronger than the rest. On this, choosing one direction (suppose the horizontal) for measuring off the values of the independent variable t , let the other (the vertical) be devoted to measuring off those of the function A corresponding to those values of t : and in this way lay down a series of points on the paper, having R, R' , &c., for their ordinates and the values of t corresponding, for their abscissas.

Through, or among these points, so as to make the least deviations consistent with a gentle and moderate curvature, or, if possible, with a rectilinear form, describe a curve, which may be called the *reducing curve in right ascension, for time*, and then read off the values of its ordinate R , which correspond, not to the *observed values* of t , but to a regular arithmetical or tabular progression of this quantity; for instance, to every tenth, or twentieth, or thirtieth minute, according to the rapidity of its variation. Lastly, enter these readings off of the interpolating curve in a table, which will therefore express the values of the

unknown function A , and may accordingly be used as a table of reductions in R. A. for that part of the reduction which depends on the time.

Briefly. Suppose $A, A', A'',$ &c., to be the values of A taken from this table corresponding to the values $t, t', t'',$ &c., of the time, at the moments of observation of the zero stars; then, since $R = A + B$, we have $B = R - A$, and similarly $B' = R' - A'$, and so on. Thus, then, we get a set of values of $B, B', B'',$ &c.; and these being in like manner laid down on a paper of engraved squares, and an interpolating curve drawn, read off, and tabulated as in the case of A , we get a table of values of B to be used for that part of the reduction in R. A. which depends on the index arc.

These tables once constructed, we may apply them immediately to the reduction of all the observations of unknown objects in R. A. which were made on the first wire. But for those made on the second, or at leaving the field, a further correction will be required, viz. the interval between the wires, to be applied negatively to the observed chronometer reading. This correction is of the form $c \cdot \text{cosec } \omega$, or $c \cdot \text{cosec } (p + i)$, where p is the polar distance of the *top* or *zero* of the sweep. By numerous observations made for the purpose, I have determined the value of c in my eye-piece as follows:

for the second wire, $c = 31''.63$;

for the final exit from the field, $c = 58''.69$.

In order, however, to avoid the trouble of making this subtraction, as a separate operation, for all the unknown objects which happen to have been observed under these circumstances, it is preferable to construct three independent tables of B (with which this correction, depending on i , unites itself) to be used for observations made on the first or second wire, or at the exit from the field, which we shall denote by B^1, B^2, B^3 .

To reduce the index readings to polar distances, for the adopted epoch, a process exactly similar must be used for determining a and b . A table of a being first constructed, the equation $b = r - a$ gives us the means of interpolating and tabulating the values of b . In this case, however, there is no occasion to form tables for the other wires, the bisection of the object by the horizontal wire being alike in all parts of its passage through the field, except within a degree or two of the pole.

To reduce a sweep, then, in the most general case, we require six tables, viz.

two for the values of A , a , whose argument is the registered time, per chronometer, and four for B^1 , B^2 , B^3 , and b , having the index reading for their argument. The construction of these tables in the manner described, and their application when constructed, is attended with very little difficulty, when once the computer is accustomed to the construction and reading off of the interpolating curves. In most cases, however, the value of A is so nearly constant, that its variation (in such observations as these) may be neglected: whenever this is the case, the table for interpolating A may be suppressed, and its constant value simply added to those of B^1 , B^2 , B^3 , which are always required. It is therefore advisable universally to regard B^1 , B^2 , B^3 , as containing the constant part of A , by which procedure all occasion of mistake arising from change of method is taken away. Most usually also the value of B^1 , so increased by the constant part of A , is the same throughout the limits of the sweep. When this is not the case, it is ordinarily owing either to extramerial situation of the telescope, or to rapid hygrometrical changes, or lastly, to wind. But with its causes we have no concern, further than to endeavour to reduce its amount when inconveniently great, by a motion of the instrument in azimuth.

The values of a are liable, as I have found by experience, to considerable fluctuations, and that in very variable degrees at different epochs of the observations. Hygrometrical changes have some influence: but by far the worst, and most intractable part of these fluctuations appears to have taken its rise from the shifting of the line of collimation, owing to the mirror taking a new bearing in its cell. I regret that I did not earlier perceive this cause of error. It has only recently occurred to me, and the remedy almost at the same instant suggested itself in a simple, and what I trust will hereafter prove an effectual application of the collimating principle of RITZENHOUSE and KATER. It consists in attaching to the *inside* of the wooden tube of the reflector a small achromatic telescope, having its object-glass turned towards the speculum, and its eye-end projecting at right angles to the axis of the tube through an aperture in the side, the cone of rays being deflected outwards at a right angle by a small mirror 45° inclined to its axis. In the focus of the object-glass, (thus rectangularly deflected,) is fixed a cross of fine spider-lines, strongly illuminated by a lamp (capable of being shut off when not wanted), which also serves to illumi-

nate the field. The cross is so situated that its image, seen in the telescope as an object infinitely distant, (according to the principle of the collimator,) makes with all its arms, angles of 45° with the horizontal and vertical wires of the sweeping eye-piece. In the beginning of a sweep, the intersections of both crosses are brought to exact coincidence (by a method presently to be explained); and it is evident that if in the progress of the sweep the slightest shifting of the mirror in its cell should produce a motion of the line of collimation, it cannot fail to be detected by the apparent recess of the two crosses from their original common intersection. A relative motion, to the amount of two seconds of space, either laterally or vertically, cannot possibly escape detection, as I have convinced myself by many trials; and so satisfactory has this mode of overcoming the difficulty in question proved, that I have no hesitation in saying that the only obstacle to the use of large reflectors for the nicer purposes of exact theoretical astronomy, (viz. the error caused by the shifting of the mirrors in their cells, by reason of their great weight, and the danger of securing them by strong pressure,) has ceased to exist*. It is not, however, sufficient to have the means of readily detecting error, without possessing that of correcting it with equal readiness, or at least measuring its amount. A very simple and effectual contrivance accomplishes this. The two adjusting screws by which the mirror case is supported against the bottom of the tube are terminated, outside of the latter, by large disks or wheels of wood about six inches in diameter, grooved at their edges. Round these, re-entering cords are conducted over pulleys, to a convenient point within reach at the mouth of the tube, forming a kind of reins, which hang loose when not in use, but by tightening or drawing one or other of them, any motion, however large or

* My first collimator consisted of a small object-glass, by FRAUNHOFER, of about one inch and a half in diameter, and twelve inches focus. When applied to the twenty-foot reflector, as described in the text, it formed an admirable microscope with its full aperture,—an extraordinary proof of the perfection of its construction, this being doubtless the severest test to which an achromatic object-glass can be possibly subjected. The most beautiful object I can remember to have seen in telescopes was Jupiter entering, perfectly defined, and with all the appearance of a real globe, into the image of a small glass globule, placed in the focus of the collimating telescope. It seemed like the mutual penetration of two solids, or rather two essences of different natures, the one bright and ethereal, the other dark and adamantine. This most exquisite specimen of workmanship was destroyed by an accident. That with which I have been forced, temporarily, to replace it, bears no comparison with the original.

minute, may be given to the line of collimation at pleasure. By the aid of this mechanism, the perfect adjustment of the line of collimation (to the full extent of the optical powers of the instrument,) is performed in an instant, and may, if we please, be repeated at every observation, being attended with no trouble. Nay, the line of collimation may be purposely deranged to any extent, and immediately corrected. So that by graduating the grooved disks, and adopting an index to each, a very complete distance and position micrometer for the measurement of double stars might be formed, in which, if necessary, two lucid points might imitate the two stars to be compared.

To return, however, from this digression, and to illustrate by an example what is here said of the method of sweeping, we may take that of sweep 384, in which the zero stars run as follow:

No.	Name of Star.	Observed Chronometer.	Wire.	Observed Index.
9	Piazzi, xxi. 363 ..	^h 21 ^m 57 ^s 5-0	1	^s 1 ['] 5 ["] 30
13	3 Lacertæ	22 18 23-5	1	0 25 0
22	P. xxii. 276	22 53 21-0	1	0 25 30
29	P. xxiii. 73	23 17 25-0	1	2 7 45
31	P. 0. 70	0 46 22-0	2	0 47 35
41	P. i. 130	1 30 57-0	2	2 1 30
49	4 Persæ	1 52 42-5	1	2 40 50
60	P. ii. 115	2 26 44-5	1	0 14 30
65	γ Persæ	2 54 9-5	1	1 51 15
79	P. iv. 7	4 5 8-5	1	2 12 0
83	1 Camelopardalis	4 21 8-5::	2	2 32 46
84	2 Camelopardalis	4 28 9-0	1	2 8 0

By comparing the observations with PIAZZI's catalogue brought up to 1830-0, and with that of the Astronomical Society for the same epoch, we get the following values of R , r .

No.	R.	r.
9	^{m s} -1 27.8	-39 1 6
13	-1 31.0	-39 2 15
22	-1 30.5	-39 1 53
29	-1 35.7	-39 1 49
31	-1 30.9	-39 1 44
41	-1 36.4	-39 1 22
49	-1 41.3	-39 1 9
60	-1 34.9	-39 1 43
65	-1 37.8	-39 1 16
79	-1 39.1	-39 1 23
83	-1 40.5	-39 0 48
84	-1 38.2	-39 0 17

Constructing now an interpolating curve to pass among a series of points laid down from the chronometer readings taken as abscissæ, and the values of R as ordinates, we get the following Table of A, by inspection of the course of the curve, as read off upon the squares of the interpolating chart.

t =		A =	t =		A =
h m	m s		h m	m s	
21 0	-1 27.5		1 0	-1 55.3	
22 0	-1 29.7		2 0	-1 36.8	
23 0	-1 31.8		3 0	-1 38.0	
0 0	-1 33.6		4 0	-1 39.0	
1 0	-1 35.3		5 0	-1 39.8	

Taking out now from this Table the values of A corresponding to the times of observation, and subtracting them from those of R, we find the following for the interpolated residues or values of B⁽¹⁾.

No.	R. A.	No.	R. A.
9	^{m s} +0 1.9	49	-0 4.7
13	-0 0.6	60	+0 2.4
22	+0 0.8	65	0 0.0
29	-0 3.3	79	0 0.0
31	+0 3.8	83	-0 1.1
41	-0 0.3	84	+0 1.2

Laying these down in like manner on a divided chart, we get the interpolated values of $D^{(1)}$ as in the following Table, beside which are also annexed those of $D^{(2)}$ and $D^{(3)}$, obtained by adding to $D^{(1)}$ the corresponding values of $-31^{\circ}09'$ cosec $(39^{\circ} - i)$, and $-58^{\circ}69'$ cosec $(39^{\circ} - i)$; $39^{\circ} - i$ being the approximate polar distance of any object in the sweep in lieu of $39^{\circ} + i$, because the telescope is directed between the zenith and pole, where i is taken negatively.

$i =$	$D^{(1)}$ for 1st Wire.	$D^{(2)}$ for 2nd Wire.	$D^{(3)}$ for leaving Field.
0 0	m s +0 5.1	m s -0 46.3	m s -1 50.2
20	+0 2.5	47.3	51.6
40	+0 1.8	48.3	52.9
1 0	+0 1.2	-0 49.3	-1 54.2
20	+0 0.5	50.3	55.6
40	-0 0.2	51.4	57.0
2 0	-0 0.8	-0 52.5	-1 58.3
20	-0 1.4	53.5	59.7
40	-0 2.1	54.5	61.1
3 0	-0 2.7	-0 55.6	-1 42.6

A process exactly similar being gone through for a and b , we find $b = 0$, and for a , the following Table.

$t =$	$a =$	$t =$	$a =$
h m	° ' "	h m	° ' "
21 0	39 2 8	1 0	39 1 34
22 0	1 59	2 0	1 24
23 0	1 51	3 0	1 10
0 0	1 43	4 0	0 55
1 0	39 1 34	5 0	39 0 56

These Tables constructed, all we have to do to reduce the whole series of objects comprised in the sweep (89 in number), is to take out from them, by proportional parts, the quantities corresponding to the registered time and index, and apply them with their proper signs. Thus, for example, the star Σ . 446 in the cluster VIII. 80, which is No. 308 of the general series in this paper, was observed in this sweep as follows:

No.	Chronometer.	Wire.	Index.
73	h m s 3 38 14.0	1	° ' "
			1 9 0

And the process of reduction stands as follows:

Chronom.	$\begin{smallmatrix} h. & m. & s. \\ 3 & 38 & 14.0 \end{smallmatrix}$	Index	$\begin{smallmatrix} ^{\circ} & ' & '' \\ - & 1 & 6 \end{smallmatrix}$
A.	$-0 \ 1 \ 35.7$	α	$+29 \ 1 \ 0$
B ⁽¹⁾	$+0 \ 0 \ 0.5$	N. P. D. 1830.0	$=57 \ 52 \ 0$
R. A. 1830.0.	$=3 \ 35 \ 36.1$		

With regard to the limits of probable error in the determination of places of such objects as have been only once observed, and which therefore admit of no check by the context, it may be right to say a few words. I consider the probable error of a single good observation, free from mistakes in the readings and reductions, and occurring in a tolerably regular sweep, in which the zero stars are in sufficient number, not to exceed a second and a half of time in R. A. and 30" in P. D. Mistakes, however, will unavoidably occur in the wire observed, in the minute of time (owing to misadjustment of the chronometer hand), and in the numerical process of reduction. All these are sure to be detected, and are easily corrected, when two or more observations of an object exist; but when one only has been obtained, it remains liable to them all. I can only hope that such cases are not numerous. There is, however, one mode in which a mistake in the R. A. may arise, not so easily detected, and which though of rare occurrence, has certainly been committed occasionally, and has no doubt been the cause of some, if not all, the very bad discordances between right ascensions determined in different sweeps. This is when the position wire of the micrometer, having been left in a direction nearly parallel to the meridian, has been mistaken for one of the fixed wires of the eye-piece, and the transit of the object over this, registered, in lieu of its passage across the true first or second wire. The error thus produced may be of any amount less than the interval of the wires, and though habitually guarded against by setting the position wire obliquely after reading off, has evidently crept in, in some few cases, by the neglect of this precaution.

With respect to the discrepancies, and apparent contradictions, which will be found in the descriptions of one and the same nebula in different sweeps, they are to be accounted for by differences in the states of the atmosphere, the mirror, and the eye, and will not appear at all surprising to any one accustomed to observation of this nature. At the same time they will serve to show what caution we ought to use in admitting such discordances between descriptions of different observers furnished with different telescopes, as evidences of real changes in any nebula.

Explanation of the PLATES, with a List of the Nebulae figured in this Paper.

Plate.	Figure.	
IX.	1.... 6	Figures illustrative of degrees of brightness. Fig. 1. cF; Fig. 2. vF; Fig. 3. F; Fig. 4. pB; Fig. 5. B; Fig. 6. vB.
	7.... 12	Figures illustrative of degrees of central brightness. Fig. 7. vbm; Fig. 8. lbm; Fig. 9. bM; Fig. 10. pmbM; Fig. 11. mbM; Fig. 12. vmbM.
	13.... 18	Figures illustrative of gradations of brightness from without inwards. Fig. 13. vgbM; Fig. 14. gbm; Fig. 15. bM; Fig. 16. pmbM; Fig. 17. mbM; Fig. 18. vmbM.
	19.... 24	Figures illustrative of degrees of elongation of form. Fig. 19. vIE; Fig. 20. lE; Fig. 21. E; Fig. 22. p m E; Fig. 23. m E; Fig. 24. v m E.

List of figured Nebulae.

Plate.	Figure.	Number in Observations.	Synonyms.	R. A.	N. P. D.	
X.	25	1622	M. 51	h m s 13 22 39	41 56	5174
	26	2060	M. 27	19 52 12	67 44	6853
	27	1456	M. 64	12 48 23	67 23	4520
	28	218	V. 19	2 11 58	48 25	891
	29	2023	M. 57	18 47 13	57 11	6710
	30	2002	Nova	18 7 1	109 56	1595
	31	311	IV. 69	3 58 56	59 40	1514
	32	838	M. 97	11 4 49	34 4	3587
	33	2088	V. 15	20 38 39	59 54	6900
	34	2092	V. 14	20 49 20	58 57	6992
XII.	35	2008	M. 17	18 10 45	106 15	6611
	36	368	M. 78	5 38 2	90 1	2068
	37	1357	V. 24	12 27 53	63 5	4565
XIII.	38	112	II. 252	1 15 0	77 59	574
	39	1649	II. 297	13 28 53	107 1	5247
	40	731	IV. 60	10 28 7	35 37	3314
	41	1456	M. 94	12 42 52	47 57	4736
	42	1989	Nova	17 44 43	66 33	6482
	43	2650	IV. 73	19 40 19	30 54	6826
	44	2098	IV. 1	20 54 53	102 2	7009

List of figured Nebulae.—Continued.

Plate.	Figure.	Number in Observations.	Synonyms.	R. A.	N. P. D.	
XIII.	45	2241	IV. 18.....	23 17 44	48 24	7662 ✓
	46	2047	IV. 51.....	19 54 21	104 33	6818 ✓
	47	2073	IV. 16.....	20 14 48	70 26	6905 ✓
	48	2072	IV. 13.....	20 9 53	59 37	6894 ✓
	49	353	I. 261.....	5 20 11	53 54	1931 ✓
XIV.	50	1376	I. 43.....	12 31 11	100 40	4594 ✓
	51	859	V. 8.....	11 11 22	73 28	3628 ✓
	52	61	V. 1.....	0 39 12	116 13	253 ✓
	53	854	M. 63.....	11 10 2	73 59	3623 ✓
	54	875	Nova.....	11 14 12	76 5	5627 ✓
	55	1175	V. 43.....	12 10 33	41 46	7257 ✓
	56	242	I. 136.....	2 29 46	51 41	1025 ✓
	57	1225	I. 210.....	12 15 6	42 4	4346 ✓
	58	151	IV. 42.....	1 40 4	84 56	576 ✓
	59	1148	I. 109.....	12 7 15	75 54	2147 ✓
	60	2236	II. 600.....	23 13 58	50 4	7640 ✓
	61	556	II. 280.....	8 45 50	92 25	2695 ✓
	62	1499	IV. 30.....	12 50 57	54 13	4661 ✓
	63	2205	I. 55.....	22 56 26	78 36	7479 ✓
	64	599	IV. 2.....	6 29 53	81 7	2261 ✓
XV.	65	557	IV. 66.....	8 46 33	33 35	2701 ✓
	66	1562	III. 602.....	12 28 28	74 48	4571 ✓
	67	1509	I. 143.....	12 52 2	86 35	4720 ✓
	68	1252	V. 29.....	12 17 22	53 31	4525 ✓
	69	1202	{ M. 61 I. 139 }.....	12 13 13	84 35	4303 ✓
	70	604	I. 56 & 57.....	9 22 32	67 45	2723 ✓
	71	1146	I. 95.....	12 7 5	32 44	4214 ✓
	72	444	II. 316 & 317..	7 14 50	60 11	2371 ✓
	73	2197	II. 430, 451 ..	22 51 12	103 45	7445 ✓
	74	1468	M. 60, III. 44..	12 35 4	77 31	4642 ✓
	75	1414	I. 176, 177....	12 33 39	56 54	4656 ✓
	76	1397	V. 42, II. 639..	12 33 54	56 30	4631 ✓
	77	1905	II. 751, 752 ..	15 6 0	69 48	5857 ✓

List of figured Nebulae.—Continued.

Plate.	Figure.	Number in Observations.	Synonyms.	R. A.	N. P. D.
				^h ^m ^s	
XV.	78	1353	Nova	12 27 55	77 49 4567 ✓
	79	936	II. 103.....	11 31 24	73 43 3800 ✓
XVI.	80	1991	IV. 41.....	17 52 0	113 1 6514 ✓
	81	357	M. 1.....	5 24 16	68 7 1952 ✓
	82	2093	Nova	20 50 4	60 26 6995 ✓
	83	1352	I. 92.....	12 27 31	61 6 4559 ✓
	84	1466	II. 75 & 74...	12 44 21	77 50 4762 ✓
	85	2245	II. 226.....	23 19 58	68 31 7678 ✓
	86	1968	M. 13.....	16 35 37	53 13 6205 ✓
	87	1916	M. 5.....	15 9 56	87 16 5904 ✓
	88	2125	M. 2.....	21 24 40	91 34 7089 ✓
	89	1929	Nova	15 29 9	83 27 5964 ✓
	90	2128	M. 30.....	21 50 42	113 55 7099 ✓
	91	415	VI. 2.....	6 45 18	71 49 2324 ✓

Notes on the foregoing List.

Fig. 25. M. 51.—This very singular object is thus described by MESSIER:—"Nébuleuse sans étoiles." "On ne peut la voir que difficilement avec une lunette ordinaire de 3½ pieds." "Elle est double, ayant chacune un centre brillant éloigné l'un de l'autre de 4' 35". Les deux atmosphères se touchent." By this description it is evident that the peculiar phenomena of the nebulous ring which encircles the central nucleus had escaped his observation, as might have been expected from the inferior light of his telescopes. My Father describes it in his observations of MESSIER's nebulae (which are not included in his catalogues,) as a bright round nebula, surrounded by a halo or glory at a distance from it, and accompanied with a companion; but I do not find that the partial subdivision of the ring into two branches throughout its south following limb was noticed by him. This is, however, one of its most remarkable and interesting features. Supposing it to consist of stars, the appearance it would present to a spectator placed on a planet attendant on one of them ex-centrally situated towards the north preceding quarter of the central mass,

would be exactly similar to that of our Milky Way, traversing in a manner precisely analogous the firmament of large stars, into which the central cluster would be seen projected, and (owing to its greater distance) appearing, like it, to consist of stars much smaller than those in other parts of the heavens. Can it, then, be that we have here a brother-system bearing a real physical resemblance and strong analogy of structure to our own? Were it not for the subdivision of the ring, the most obvious analogy would be that of the system of Saturn, and the ideas of LAPLACE respecting the formation of that system would be powerfully recalled by this object. But it is evident that all idea of symmetry caused by rotation on an axis must be relinquished, when we consider that the elliptic form of the inner subdivided portion indicates with extreme probability an elevation of that portion above the plane of the rest, so that the real form must be that of a ring split through half its circumference, and having the split portions set asunder at an angle of about 45° each to the plane of the other.

Fig. 26. MESS. 27.—Described by MESSIER thus: "Nébuleuse sans étoile." "On la voit bien avec une lunette ordinaire de $3\frac{1}{2}$ pieds: elle paraît sous une forme ovale et ne contient aucune étoile." In my Father's observations the true form (like that of a double-headed shot or dumb-bell,) was of course distinctly perceived, and the small stars it contains are noticed, and taken as an indication of its resolvability. I incline, however, to the opinion of their being accidental stars (of which multitudes exist in the surrounding region). But here, as in the former object, the feature which gives a peculiar interest to the whole nebula, and alters entirely the light in which its physical constitution must be considered, has been hitherto overlooked,—I mean the faint nebulosity which fills in the lateral concavities of the body, and converts them in fact into protuberances, so as to render the general outline of the whole nebula, a regular ellipse, having for its *shorter* axis the common axis of the two bright masses of which the body consists, that is to say, the *longer* axis of the oval form, under which it was imperfectly seen by MESSIER. To this axis the complete figure is symmetrical, and if we are disposed to regard it as a mass in rotation, it is about this axis that we must suppose it to revolve. In that case its real form must be that of an oblate spheroid; and as it does not follow that the brightest portions must of necessity be the densest, this supposition would

not be incompatible with dynamical laws, at least, supposing its parts to be capable of exerting pressure on one another. But if it consist of discrete stars, this cannot be admitted, and we must have recourse then to other suppositions to account for the maintenance of its form.

Fig. 27. Mess. 64.—The dark semi-elliptic vacancy (indicated by an unshaded or bright portion in the figure,) which partially surrounds the condensed and bright nucleus of this nebula, is of course unnoticed by MESSIER. It was however seen by my Father, and shown by him to the late Sir CHARLES BLAGDEN, who likened it to the appearance of a *black eye*, an odd, but not inapt comparison. The nucleus is somewhat elongated, and I have a strong suspicion that it may be a close double star, or extremely condensed double nebula.

Fig. 28. V. 19.—An extraordinary object. Perhaps the representation in the figure is too nicely symmetrical, as it certainly is too sharply defined and distinct. It is of the last degree of faintness, and may very well be unperceived, though full in the field of view. There can hardly be a doubt of its being a thin flat ring, of enormous dimensions, seen very obliquely.

Fig. 29. Mess. 57.—The annular nebula in Lyra. It is ill represented. The edges exhibit a curdled and confused appearance, like stars out of focus. The interior is far from absolutely dark. It is filled with a feeble but very evident nebulous light, which I do not remember to have seen noticed by former observers. Comparing figures 25, 27, 28, 29 and 48, it will appear that the annular form, or an approach to it, is one of those which nebulae after, and taken in connexion with the ring of Saturn and the Milky Way, may lead us to conceive that some kind of analogy, however obscure, may subsist in all those cases.

Fig. 33.—The engraving represents this very strange nebula much too intense. It is an extremely faint object. The large double star is ϵ Cygni.

Fig. 35. Mess. 17.—The figure of this nebula is nearly that of a Greek capital omega Ω , somewhat distorted and very unequally bright. It is remarkable that this is the form usually attributed to the great nebula in Orion, though in that nebula I confess I can discern no resemblance whatever to the Greek letter. MESSIER perceived only the bright preceding branch of the nebula now in question, without any of the attached convolutions which were

first noticed by my Father. The chief peculiarities which I have observed in it are, 1st, the resolvable knot in the following portion of the bright branch, which is in a considerable degree insulated from the surrounding nebula; strongly suggesting the idea of an absorption of the nebulous matter; and 2ndly, the much feebler and smaller knot at the north preceding end of the same branch, where the nebula makes a sudden bend at an acute angle. With a view to a more exact representation of this curious nebula, I have at different times taken micrometrical measures of the relative places of the stars in and near it, by which, when laid down as in a chart, its limits may be traced and identified, as I hope soon to have better opportunity to do than its low situation in this latitude will permit.

Fig. 37. V. 24, and Fig. 50. I. 43.—The strong suspicion of a parallel appendage to the latter of these, is almost converted into certainty by its undoubted existence in V. 24, in which it was seen by two other observers as well as by myself. But what are we to make of such an appendage? Must we consider it as an extreme exaggeration of the case of M. 64 (fig. 27), in which the vacancy is extended up to almost the very extremities of the elliptic outline,—in which case the nebula would come to be regarded as a flat annulus seen at a great obliquity, and having very unequal breadths and densities in its two opposite semicircles? Or must we admit the appendage to be a separate and distinct nebula, dependent, by some unknown physical relation, on its brighter neighbour?

Fig. 43.—This remarkable object, as my Father rightly observes, appears to constitute a connecting link between the planetary nebulae and nebulous stars. It differs from the latter class of objects in respect of the intensity and comparatively sharp termination of the surrounding light; and no less from the former, in that of its stellar centre. With regard to nebulous stars generally, I ought to mention that it has frequently occurred to me to notice a peculiar state of the atmosphere in which all large stars (above the 7th magnitude) have appeared surrounded with photospheres of 2' or 3' or more in diameter, precisely resembling that about some of the finer specimens of nebulous stars. The state of the air alluded to, is not that in which fog, or any degree of haziness, or thin strata of cloud are perceptible to the sight. These produce no such appearance. Stars are seen through fog, cloud, or ordinary haze, pre-

elsely as if there were no such intervening medium; only less bright. The photospheres in question are often seen when the sky seems quite pure and clear. They do not arise from dew on the glasses, as is proved by wiping them; nor in the eye itself, for they do not vanish when the star is made to *blink* behind one of the thick wires of the eye-piece; nor in scabrous polish of the mirror, for they are not permanent. They come on suddenly; seldom last very long, and disappear as unexpectedly as they come. When first this phenomenon presented itself, a considerable star which appeared so surrounded was at once set down as a superb nebulous star, and it was not until another and another entered the field similarly affected, that any doubt arose. As regards the true cause of this phenomenon, that it is atmospheric I have no doubt, and perhaps it must be looked for in some highly rarified material, disseminated in cloud-like, though invisible, masses, in the very highest regions of our atmosphere,—the same possibly which, when ignited by the passage of electric currents, gives rise to many if not all the phenomena of the aurora borealis. Be that as it may, the fact that an appearance, exactly resembling that of a nebulous star, may originate in a non-luminous medium, interposed between the eye and the star, serves to render it not improbable that such matter may exist, disseminated through the ether itself in determinate localities, and may render some stars which shine through it nebulous, which have no real nebulous atmospheres about them. The frequency of nebulous stars in the constellation of Orion seems to afford some support to this idea, though I am far from contending that there are no stars really nebulous. Of such the object immediately under consideration, indeed, must be regarded as an undoubted instance.

Figs. 44 47.—Planetary nebulae. The point to which I should here draw attention is the frequent and close proximity to these objects, of minute stars, which suggest the idea of accompanying satellites. Such they may possibly be. The enormous magnitude of these bodies, and consequent probable mass (if they be not hollow shells), may give them a gravitating energy, which, however rare we may conceive them to be, may yet be capable of retaining in orbits, three or four times their own diameter, and in periods of great length, small bodies of a stellar character. In this point of view a continued series of the angles of position of their companions, micrometrically measured with

due care, would be interesting; and I regret not having sufficiently attended to this in my observations, the few measures given, being hurried, imperfect and discordant.

Plate XIV. Figs. 50....67.—*Long nebulae.* The general form of elongated nebulae is elliptic, and their condensation towards the centre is almost invariably such as would arise from the superposition of luminous elliptic strata, increasing in density towards the centre. In many cases (as in fig. 53,) this increase of density is obviously attended with a diminution of ellipticity, or a nearer approach to the globular form in the central than in the exterior strata. It is probably owing to this, that extended nebulae seen in dull or hazy states of the sky are often described as *round*, the fainter and more elliptic envelopes being obliterated, and only the more globular nuclei perceived. The great extension of some nebulae into long lenticular rays, and the existence of every intermediate degree of ellipticity up to the exact circular form, with the various degrees of rapidity of central condensation, from a barely perceptible increase of density to a seemingly solid nucleus, are all accounted for by supposing the general constitution of these nebulae to be that of oblate spheroidal masses of every degree of flatness from the sphere to the disc, and of every variety in respect of the law of their density and ellipticity towards the centre. It would be incorrect, however, to draw from this any inference as to the identity of the forces which maintain them in this form with those which determine the oblate spheroidal form of a revolving fluid mass under the dominion of the law of gravitation, and subject to compression by the superincumbent matter. If a nebula be nothing more than a cluster of discrete stars, (as we have every reason to believe, at least in the generality of cases,) no pressure can be propagated through it; and its equilibrium, or, to speak more correctly, the permanence of its form, must be maintained in a way totally different. In a system so constituted, no general rotation of the whole, as a mass, can be supposed. It must rather be conceived as a *quiescent form*, comprising within its limits an indefinite multitude of individual constituents, which, for aught we can tell, may be moving one among the other, each animated by its own inherent projectile force, and deflected into an orbit more or less complicated, by the influence of that law of internal gravitation which may result from the compounded attractions of all its parts. I have

shown elsewhere* how a quiescent spherical form may subsist as the bounding outline of an immense number of equal stars uniformly distributed through its extent, each of which individually attracts all the others with a force inversely as the square of the distance, and whose united attractions compose an internal force on each, directly proportional to the distance from the centre of the sphere. In such a state of things, each star might describe an ellipse in any plane, and in any direction in that plane about the common centre, without the possibility of collision; but the sphere, regarded as a whole, would have no rotation about any axis. If the form be not spherical, and the distribution of the stars not homogeneous, the dynamical relations become too complicated to be distinctly apprehended, yet we may still conceive that something of an analogous result may subsist, and that both the external form and the internal density may be maintained (at least under certain conditions,) for the mass as a quiescent whole, while all its elements are in a state of unceasing transfer and interchange.

Plate XV. Figs. 68....79.—*Double nebulae*. All the varieties of double stars, as to distance, position and relative brightness, have their counterparts in double nebulae; besides which, the varieties of form and gradation of light in the latter afford room for combinations peculiar to this class of objects. The series of figures expressed in this Plate exhibits a considerable number of these combinations; and it will, I think, be found impossible, on casting our eye over its contents, and referring mentally to the great number of similar objects scattered through the heavens, to refuse our assent to the idea of a more intimate physical relation between the individuals of a double nebula than that of mere casual juxtaposition. The argument drawn from the comparative rarity of the objects in proportion to the whole extent of the heavens, so cogent in the case of the double stars, is infinitely more so in that of the double nebulae. Nebulae, for example, so large and faint, and so little condensed towards the centre as those of V. 29, (fig. 68,) are extremely rare, even single, so that the improbability of two such, casually occurring, so near together as to mix their nebulosities, is extreme. It will therefore become a very interesting subject of future inquiry, whether any traces of orbital motion (indicated by a progressive change in their angles of position with respect to the meri-

* Cabinet Cyclopaedia, ASTRONOMY, last page.

dian,) can be detected in these combinations. The micrometrical measures of many of them which occur in the foregoing observations, though neither so numerous nor so accurate as might be wished, will at least serve as terms of rough comparison, sufficient at least for the detection of rapid rotations.

Plate XVI. Figs. 80, 82, 83, 84, 85 represent nebulae which offer some remarkable peculiarity of situation with respect to stars. Of these the most singular are IV. 41, (fig. 80,) and that of fig. 82. The latter, however, is very imperfectly expressed in the drawing. Indeed it would be excessively difficult to execute a drawing of such an object with any pretensions to correctness. In this, general resemblance and character only has been aimed at, enough to express the peculiar feature of the object, which is a network or tracery of nebulae following the lines of a similar network of stars. It is an extremely faint and difficult object, and only once observed; but I do not think it possible I could have been deceived as to the reality of the phenomenon, especially since the brighter parts of the nebula are stated in the observation to have been distinctly seen.

Figs. 81, 86, 87, 88, 89, 90, 91 are clusters of stars, beginning with a barely resolvable one, (M. 1. fig. 81,) and ascending by successive degrees,—figs. 89, 88, 87,—to M. 13, fig. 86, which is one of the most magnificent assemblages of stars the heavens contain. They are instructive, exhibiting, as they do, an analysis of the intimate structure of nebulae, on which depend many of the peculiarities of their appearance when no stars can be actually discerned in them, such as, for example, that peculiar character to which, when it has occurred, the epithet “hairy” or “filamentous” has been attached in the descriptions, and which is well illustrated by the figure (fig. 86) of MESSIER’s 13th, and by the description of the 53rd of the *Connaissance des Temps* (No. 1558 in the above observations,) as set down in sweep 63; the border, instead of melting away insensibly, having a ragged or fibrous appearance. Again, fig. 90, if removed far enough to lose the stars, would be described, doubtless, as irregularly round or unsymmetrical, if not as having a bifid or forked tail: and fig. 91 (VI. 2.) would, under similar circumstances of removal, appear as a fan-shaped nebula with a bright point like a star at the vertex, such as is represented in figs. 65, 66, 67, 68.

Before terminating this Appendix, it should be explained what is meant by

the references, so frequent in the observations, to a "working list." It has been my invariable practice to prepare before each night's sweep a list, in order of R. A. with approximate polar distances, of the principal objects occurring within the zone intended to be embraced in the sweep, and about $5'$ or $10'$ above and below it. It is needless to mention that the nebulae of these lists were mostly those of my Father's sweeps,—not, however, as taken merely from his printed catalogue, in which only references of their places to the nearest large stars are stated, but as reduced and digested (with great patience and care) into a regular catalogue in zones, by my aunt, Miss CAROLINE HERSCHEL. This valuable MS., which performs the same office with regard to my Father's sweeps, as far as concerns the places of the nebulae, as the present digested and reduced series of observations does to my own, has therefore been, in point of fact, the groundwork of my whole proceedings, and I should be not only ungrateful, but in a high degree unjust, were I to omit in this place acknowledging the advantage I have derived from its use.

At the commencement of my sweeps, I contented myself, however, with a bare notice of the chief expected nebulae, but finding that owing to the interest excited by these objects, the zero stars were too much neglected, and smaller nebulae missed, these came to be inserted at convenient intervals. Subsequently, too, the double stars of STRAUVE's catalogue began to be entered on the lists; and at length, experience having shown me that no trouble bestowed on the construction of an ample and exact "working list" could be considered ill bestowed, I threw aside all the earlier lists of this sort, and dividing the heavens into zones of polar distance, of 3° in breadth from 0° to 120° , proceeded to construct a series of lists or approximate catalogues in order of R. A. for 1830, in which should be comprised the following objects:

- 1st. All my Father's nebulae and clusters.
- 2nd. MESSIER's ditto.
- 3rd. All other nebulae and clusters of which any hints could anywhere be found, including new ones from my own sweeps, inserted from time to time.
- 4th. All the double stars of STRAUVE's greater catalogue.
- 5th. All other remarkable double stars of which any record could be found, either in my own sweeps or elsewhere.
- 6th. A series of zero stars, chosen so as to interfere as little as possible with

the other objects, and selected from the catalogue of the Astronomical Society; or where none fit for the purpose could be found there, from Piazzi's; or failing that, from other authorities.

The construction of the "working lists" on this extended scale, has formed a very large part of the regular work of my sweeps; but so far from regretting the trouble they have cost, or regarding it as waste labour, I can only lament having deferred their full execution till impressed by the experience of much more, and far more valuable observing time lost, with a sense of their importance.

One consequence of the construction of the working lists has been the gradual accumulation of a pretty extensive catalogue of missing nebulae;—perhaps it would be more correct to say, nebulae not found when looked for. The fainter nebulae are so easily overlooked, even when in the field of view, and are altogether such very delicate objects, that it is the most difficult thing in the world to prove the negative proposition as to their existence. Many such cases, too, must have originated in mistaken entries on the list, some doubtless in mistakes in the observations from which those lists were constructed, and some from actually looking in the wrong places by mistaken settings of the telescope. Aware of all these possibilities, I have thought it best to suppress this list for the present, having had no time to go into an examination of the subject. Indeed I doubt whether it would be worth while to do so. There seems very little probability that a real nebula should have disappeared from the heavens; and though some few telescopic comets may have been noticed in my Father's sweeps, and set down as nebulae, the chances are almost infinite against any such observation, if ascertained, proving of use as a datum for improving the elements of any recorded comet.