GREENWICH

ASTRONOMICAL RESULTS,

1875.

RESULTS

OF THE

ASTRONOMICAL OBSERVATIONS

MADE AT

THE ROYAL OBSERVATORY, GREENWICH,

1875.

(EXTRACTED FROM THE GREENWICH OBSERVATIONS, 1875.)

ROYAL OBSERVATORY, GREENWICH.

CATALOGUE

OF

CONCLUDED MEAN RIGHT ASCENSIONS AND NORTH POLAR DISTANCES,

FOR 1875, JANUARY 1,

OF STARS OBSERVED IN THE YEAR 1875,

WITH THE ANNUAL VARIATIONS:

(The North Polar Distances being corrected for Inequality in the Screws of the Microscope-Micrometers, for Discordance of Direct and Reflexion-Observations, for Errors of Division, and for the Flexure of the Telescope of the Transit-Circle:)

ALSO,

NEW CONSTANTS FOR STARS INCLUDED IN THE CATALOGUE

NOT INCLUDED IN THE

GREENWICH SEVEN-YEAR CATALOGUES FOR 1860 AND 1864,

OR IN LATER ANNUAL CATALOGUES.

CATALOGUE OF THE CONCLUDED MEAN RIGHT ASCENSIONS AND MEAN NORTH POLAR DISTANCES, FOR 1875, JAN. 1, OF STARS OBSERVED IN THE YEAR 1875; WITH THE ANNUAL VARIATIONS.

(The N.P.D.'s are corrected for Inequality in the Screws of the Microscope-Micrometers, for Discordance of Direct and Reflexion-Observations, for Errors of Division, and for Flexure of Telescope of the Transit-Circle.)

No.	Star's Name.	Number of Obs. of R.A.	Mean R.A. 1875, Jan. 1.	Whole Number of Obs. of R.A.	Fraction of Year for Mean of Obs.	Concluded Seconds of R.A.	Annual Variation in R.A.	Number of Obs. of N.P.D. D.	Number of Obs. of N.P.D. R.	Mean N.P.D. 1875, Jan. 1. D.	Mean N.P.D. 1875, Jan. 1. R.	Whole Number of Obs. of N.P.D.	Fraction of Year for Mean of Obs.	Concluded Seconds of N.P.D.	Annual Variation in N.P.D.
			h m s			s	s			° ′ ″	″			″	″
1	α Andromedæ	4	0. 1. 55·720	4	0·33	55·720	+ 3·087	5	1	61. 35. 58·52	58·31	6	0·39	58·49	— 19·90
2	Bradley 3217 S.P.	1	0. 2. 28·040	1	0·26	28·040	3·204	1		10. 58. 46·89		1	0·26	46·89	19·97
3	87 Pegasi	2	0. 2. 35·630	2	0·86	35·630	3·089	2		72. 28. 57·88		2	0·86	57·88	20·07
4	γ Pegasi	1	0. 6. 47·910	1	0·67	47·910	3·083			75. 30.					
5	Bradley 6		0. 9. (10.)					1	1	13. 44. 38·89	39·41	2	0·81	39·15	20·01
6	Piazzi 0. 33	4	0. 11. 22·505	4	0·74	22·505	3·068	4		89. 0. 21·29		4	0·74	21·29	20·02
7	ι Ceti	1	0. 13. 3·500	1	0·96	3·500	3·054			99. 31.					
8	Groombridge 48	2	0. 13. 56·115	2	0·80	56·115	3·220	2		28. 48. 51·32		2	0·80	51·32	20·02
9	12 Cassiopeiæ	1	0. 17. 54·520	1	0·72	54·520	3·258	1		28. 51. 41·89		1	0·72	41·89	19·99
10	44 Piscium	2	0. 18. 59·650	2	0·71	59·650	3·072	3		88. 45. 9·30		3	0·74	9·30	19·97
11	Bradley 24	2	0. 19. 9·555	2	0·77	9·555	3·678	2		10. 38. 25·28		2	0·77	25·28	19·96
12	Bradley 34	1	0. 22. 56·280	1	0·96	56·280	3·623	1		13. 40. 15·13		1	0·96	15·13	19·93
13	28 Andromedæ		0. 23. (31.)					2	2	60. 56. 15·41	16·21	4	0·83	15·81	19·88
14	12 Ceti	1	0. 23. 39·620	1	0·71	39·620	3·059	1		94. 38. 53·02		1	0·71	53·02	19·94
15	13 Cassiopeiæ	1	0. 24. 14·930	1	0·78	14·930	3·423	1		24. 10. 17·21		1	0·78	17·21	19·94
16	Piazzi 0. 103	1	0. 26. 13·610	1	0·81	13·610	3·152	1		62. 24. 36·39		1	0·81	36·39	19·92
17	π Andromedæ	1	0. 30. 12·520	1	0·96	12·520	3·190	1		56. 58. 7·23		1	0·96	7·23	19·88
18	ε Andromedæ	3	0. 31. 57·150	3	0·31	57·150	3·155	2		61. 22. 2·06		2	0·06	2·06	19·62
19	δ Andromedæ	2	0. 32. 38·845	2	0·86	38·845	3·192	2	1	59. 49. 24·13	23·32	3	0·88	23·86	19·75
20	α Cassiopeiæ	2	0. 33. 25·395	3	0·58	25·390	3·365	2		34. 8. 53·72		3	0·62	53·16	19·80
	α Cassiopeiæ S.P.	1	25·380					1		51·48					
21	Bradley 63	2	0. 35. 20·475	2	0·84	20·475	3·401	2		31. 55. 56·13		2	0·84	56·13	19·83
22	β Ceti	4	0. 37. 18·805	4	0·59	18·805	3·012			108. 40.					
23	η Cassiopeiæ	1	0. 41. 33·030	2	0·64	32·885	3·577	1		32. 50. 52·63		2	0·70	52·67	19·24
	η Cassiopeiæ S.P.	1	32·740					1		52·73					
24	δ Piscium	3	0. 42. 11·860	3	0·50	11·860	3·105	2		83. 5. 44·18		2	0·56	44·18	19·66
25	ν Andromedæ	1	0. 42. 55·560	1	0·81	55·560	3·281	1		49. 36. 8·24		1	0·81	8·24	19·69
26	Bradley 90		0. 45.					1	1	29. 33. 42·90	43·70	3	0·78	42·90	19·71
	Bradley 90 S.P.	1	37·440	1	0·40	37·440	3·528	1		41·71					
27	20 Ceti	3	0. 46. 37·160	3	0·82	37·160	3·059	1		91. 49. 21·84		1	0·71	21·84	19·63
28	υ¹ Cassiopeiæ	2	0. 47. 35·565	2	0·71	35·565	3·506	2		31. 42. 14·92		2	0·71	14·92	19·53
29	μ Andromedæ	2	0. 49. 49·165	2	0·50	49·165	3·301	3		52. 10. 45·40		3	0·34	45·40	19·63
30	Groombridge 192	1	0. 50. 37·390	1	0·72	37·390	3·721	2		24. 19. 26·15		2	0·70	26·15	19·57
31	2 Ursæ Minoris	1	0. 52. 1·570	1	0·95	1·570	7·035	1		4. 24. 51·68		1	0·95	51·68	19·53
32	Groombridge 219	1	0. 55. 56·040	2	0·55	56·015	3·641	1		29. 35. 51·21		2	0·60	50·76	19·46
	Groombridge 219 S.P.	1	55·990					1		50·07					
33	σ¹ Piscium		0. 55. (58.)					1	1	58. 52. 0·41	2·57	2	0·92	1·49	19·46
34	ϵ Piscium	10	0. 56. 27·360	10	0·62	27·360	3·112	1		82. 46. 59·99		1	0·71	59·99	19·45
35	Groombridge 234	1	0. 58. 30·870	1	0·95	30·870	3·709	1		27. 54. 26·94		1	0·95	26·94	19·40
36	Bradley 109	1	0. 58. 37·050	2	0·60	37·200	4·872	1	1	10. 39. 20·81	22·04	3	0·71	21·37	19·32
	Bradley 109 S.P.	1	37·350					1		21·25					
37	75 Piscium	1	0. 59. 59·160	1	0·75	59·160	3·151	1		77. 42. 51·35		1	0·75	51·35	19·45
38	β Andromedæ	7	1. 2. 44·256	7	0·49	44·256	3·340	2		55. 2. 33·02		2	0·30	33·02	19·22
39	ψ³ Piscium	1	1. 3. 8·310	1	0·81	8·310	3·206	1		71. 0. 30·63		1	0·81	30·63	19·30
40	ζ¹ Piscium	2	1. 7. 12·035	2	0·76	12·035	3·127	2		83. 5. 8·58		2	0·76	8·58	19·23
41	Polaris	47	1. 12. 59·414	103	0·51	59·373	20·864	71	3	1. 21. 26·19	25·87	171	0·52	26·14	19·04
	Polaris S.P.	56	59·339					87	10	26·16	25·69				
42	δ Cassiopeiæ S.P.	1	1. 17. 39·210	1	0·40	39·210	3·871	1		30. 24. 54·58		1	0·40	54·58	— 18·86
43	θ Ceti	2	1. 17. 46·555	2	0·81	46·555	+ 2·996			98. 49.					

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			h m s			s	s			° ′ ″	″			″	″
44	A Cassiopeiæ S.P. .	1	1. 21. 57·500	1	0·38	57·500	+ 4·357	1		20. 22. 45·17		1	0·38	45·17	−18·71
45	Piazzi I. 90	1	1. 22. 30·420	1	0·07	30·420	3·288	1		65. 22. 21·34		1	0·07	21·34	18·77
46	η Piscium	5	1. 24. 47·766	5	0·65	47·766	3·199	1	1	75. 17. 57·37	58·53	2	0·95	57·95	18·70
47	Piazzi I. 104		1. 27. (3.)					1	1	53. 24. 16·02	16·13	2	0·98	16·08	18·68
48	40 Cassiopeiæ S.P. .	2	1. 28. 33·740	2	0·65	33·740	4·651	2		17. 35. 53·50		2	0·65	53·50	18·60
49	π Piscium	2	1. 30. 28·420	2	0·49	28·420	3·170	2		78. 29. 54·67		2	0·49	54·67	18·54
50	ω Cassiopeiæ		1. 33.					1		22. 35. 25·12	25·87	3	0·80	24·75	18·41
	ω Cassiopeiæ S.P. ..	1	6·470	1	0·28	6·470	4·340	1		22·51					
51	42 Cassiopeiæ	2	1. 33. 15·990	3	0·18	15·987	4·546	2		20. 0. 36·08		3	0·15	35·96	18·40
	42 Cassiopeiæ S.P..	1	15·980					1		35·58					
52	B. A. C. 516.....	3	1. 34. 50·273	3	0·88	50·273	3·443	2		55. 23. 9·48		2	0·88	9·48	18·36
53	ν Piscium	2	1. 34. 55·550	2	0·86	55·550	3·114	2		85. 8. 43·43		2	0·08	43·43	18·32
54	τ Ceti	7	1. 38. 15·656	7	0·74	15·656	2·784	7		106. 35. 46·50		7	0·74	46·50	19·09
55	ο Piscium	1	1. 38. 47·590	1	0·69	47·590	3·162			81. 28.					
56	Piazzi I. 170.....	1	1. 41. 16·650	1	0·06	16·650	3·518	1		52. 40. 12·50		1	0·06	12·50	18·14
57	ε Cassiopeiæ	2	1. 45. 25·305	2	0·93	25·305	4·250	1	1	26. 56. 48·28	49·17	2	0·95	48·73	17·95
58	46 Cassiopeiæ	2	1. 46. 19·140	2	0·97	19·140	4·557	2		21. 55. 48·36		2	0·97	48·36	17·91
59	β Arietis.....	4	1. 47. 44·240	4	0·68	44·240	3·297	1		69. 48. 13·80		1	0·07	13·80	17·77
60	Bradley 253.....	1	1. 48. 30·940	1	0·69	30·940	3·529	1		53. 20. 12·00		1	0·69	12·00	17·86
61	56 Andromedæ	2	1. 48. 44·125	2	0·73	44·125	3·542	2		53. 21. 44·20		2	0·73	44·20	17·88
62	56 Ceti.....	2	1. 50. 48·890	2	0·89	48·890	2·811	1		113. 8. 13·29		1	0·85	13·29	17·71
63	λ Arietis	1	1. 50. 57·970	1	0·79	57·970	3·331			67. 0.					
64	Piazzi I. 223	1	1. 52. 44·470	1	0·04	44·470	3·202	1		78. 18. 44·96		1	0·04	44·96	17·61
65	50 Cassiopeiæ	1	1. 52. 48·010	1	0·82	48·010	4·985			18. 11.					
66	53 Cassiopeiæ S.P. .	1	1. 53. 46·260	1	0·33	46·260	4·367	1		26. 12. 53·24		1	0·33	53·24	17·64
67	ε Trianguli.....	2	1. 55. 40·035	2	0·43	40·035	3·496	2		57. 19. 9·49		2	0·43	9·49	17·56
68	54 Cassiopeiæ S.P. .	1	1. 58. 22·930	1	0·42	22·930	5·050	1		19. 2. 13·54		1	0·42	13·54	17·20
69	κ Arietis.....	1	1. 59. 34·410	1	0·97	34·410	3·347	1		67. 56. 54·14		1	0·97	54·14	17·43
70	α Arietis	7	2. 0. 7·786	7	0·58	7·786	3·367	2	1	67. 7. 47·04	45·99	3	0·72	46·72	17·21
71	55 Cassiopeiæ	1	2. 4. 41·700	1	0·07	41·700	4·618	1		24. 3. 48·67		1	0·07	48·67	17·16
72	6 Trianguli	1	2. 5. 7·360	1	0·96	7·360	3·467	1		60. 17. 1·17		1	0·96	1·17	17·09
73	19 Arietis	3	2. 6. 14·323	3	0·76	14·323	3·263	3		75. 18. 24·45		3	0·76	24·45	17·07
74	ξ^1 Ceti	4	2. 6. 22·495	4	0·84	22·495	3·170			81. 44.					
75	7 Trianguli	1	2. 8. 33·030	1	0·87	33·030	3·531	1		57. 13. 24·43		1	0·87	24·43	16·97
76	δ Trianguli.....	1	2. 9. 25·810	1	0·87	25·810	3·638			56. 20.					
77	67 Ceti.....	4	2. 10. 44·915	4	0·47	44·915	2·987	2		96. 59. 55·74		2	0·49	55·74	16·74
78	Piazzi II. 61	1	2. 15. 3·970	1	0·08	3·970	3·717	1		49. 10. 20·55		1	0·08	20·55	16·58
79	Bradley 332.....		2. 18. (47.)					1	1	23. 9. 41·15	40·83	2	0·98	40·99	16·58
80	Piazzi II. 83.....	1	2. 19. 28·410	1	0·71	28·410	3·215	1		79. 55. 5·34		1	0·71	5·34	16·11
81	Piazzi II. 60.....	2	2. 19. 41·965	2	0·92	41·965	7·942	2		8. 54. 42·06		2	0·92	42·06	16·51
82	12 Trianguli	1	2. 20. 50·550	1	0·92	50·550	3·498	1		60. 53. 24·77		1	0·92	24·77	16·30
83	ξ^2 Ceti	1	2. 21. 30·780	1	0·71	30·780	3·181	2		82. 6. 3·97		2	0·47	3·97	16·33
84	27 Arietis	3	2. 23. 58·490	3	0·74	58·490	3·314	4		72. 51. 0·30		4	0·71	0·30	16·14
85	14 Trianguli	1	2. 24. 28·790	1	0·95	28·790	3·638	1		54. 24. 29·20		1	0·95	29·20	16·19
86	W. B. II. 453	6	2. 28. 33·940	6	0·93	33·940	3·161	6		83. 43. 20·55		6	0·93	20·55	15·99
87	Piazzi II. 123.....	9	2. 29. 13·624	9	0·90	13·624	3·282	9		83. 42. 38·98		9	0·90	38·98	17·44
88	ν Ceti	1	2. 29. 18·870	1	0·71	18·870	3·136			84. 57.					
89	δ Ceti	1	2. 33. 4·530	1	0·87	4·530	3·072			90. 12.					
90	Bradley 366.....	1	2. 34. 5·790	2	0·64	5·845	+ 5·060	1		22. 42. 30·79		2	0·69	30·40	− 15·64
	Bradley 366 S.P. ..	1	5·900					1		29·83					

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			h m s			s	s			° ′ ″	″			″	″
91	μ Arietis	2	2. 35. 19·245	2	0·81	19·245	+ 3·368	3		70. 31. 20·07		3	0·75	20·07	— 15·57
92	35 Arietis.....	1	2. 36. 7·220	1	0·95	7·220	3·502			62. 49.					
93	γ^2 Ceti	2	2. 36. 49·470	2	0·84	49·470	3·101	1		87. 17. 30·99		1	0·97	30·99	15·35
94	39 Arietis	1	2. 40. 28·210	1	0·95	28·210	3·553	1		61. 16. 23·79		1	0·95	23·79	15·23
95	Bradley 382.....	1	2. 40. 51·210	3	0·60	51·103	5·245	1		21. 37. 54·91		4	0·61	53·72	15·31
	Bradley 382 S.P....	2	51·050					3		53·13					
96	40 Arietis	1	2. 41. 31·700	1	0·79	31·700	3·352	1		72. 14. 16·89		1	0·79	16·89	15·30
97	η Persei S.P.	1	2. 41. 35·260	1	0·48	35·260	4·329	2		34. 37. 30·16		2	0·48	30·16	15·27
98	17 Persei	1	2. 43. 49·030	1	0·98	49·030	3·681	1		55. 27. 21·74		1	0·98	21·74	15·03
99	σ Arietis	2	2. 44. 35·530	2	0·91	35·530	3·298	1		75. 26. 3·05		1	0·91	3·05	15·05
100	Cephei 47 (Hev.) S.P.	3	2. 49. 33·323	3	0·40	33·323	7·649	4		11. 4. 42·53		4	0·42	42·53	14·82
101	21 Persei	1	2. 49. 42·320	1	0·96	42·320	3·628		1	58. 34.	15·27	1	0·87	15·27	14·82
102	ϵ Arietis.....	3	2. 52. 3·973	3	0·59	3·973	3·418	1		69. 9. 38·70		1	0·79	38·70	14·64
103	6 Eridani	2	2. 52. 32·110	2	0·98	32·110	2·669	2		114. 6. 34·03		2	0·98	34·03	14·68
104	49 Arietis		2. 54. (32.)					1	1	64. 2. 1·90	1·67	2	0·02	1·79	14·51
105	γ Persei	1	2. 55. 45·180	2	0·64	45·260	4·305	1		36. 59. 5·77		2	0·73	4·85	14·43
	γ Persei S.P.	1	45·340					1		3·00					
106	ρ Persei		2. 57. (10.)					1	1	51. 38. 44·82	45·52	2	0·87	45·17	14·25
107	Bradley 417	1	2. 58. 26·090	1	0·95	26·090	6·303			16. 5.					
108	β Persei		3. 0. (2.)					1	1	49. 31. 39·12	38·53	2	0·90	38·83	14·20
109	55 Arietis.....	1	3. 2. 5·690	1	0·91	5·690	3·597	1		61. 24. 7·91		1	0·91	7·91	14·07
110	Bradley 402 S.P....	1	3. 3. 5·080	1	0·38	5·080	12·946	1		5. 32. 13·00		1	0·38	13·00	13·87
111	δ Arietis	2	3. 4. 29·025	2	0·92	29·025	3·419	2		70. 44. 51·68		2	0·49	51·68	13·90
112	ζ Arietis.....	1	3. 7. 43·180	1	0·64	43·180	3·433	3	1	69. 25. 12·49	12·47	4	0·36	12·49	13·63
113	Groomb. 628 S.P...	2	3. 8. 7·635	2	0·43	7·635	5·657	3		20. 43. 45·20		3	0·45	45·20	13·67
114	Piazzi III. 23	1	3. 10. 55·060	1	0·02	55·060	3·743	1		56. 14. 9·75		1	0·02	9·75	13·42
115	Bradley 449 S.P. ..	1	3. 12. 27·250	1	0·38	27·250	6·281	1		17. 14. 21·89		1	0·38	21·89	13·39
116	Piazzi III. 27 S.P. .	1	3. 13. 50·680	1	0·37	50·680	5·143	1		25. 51. 46·52		1	0·37	46·52	13·21
117	α Persei	2	3. 15. 24·390	2	0·50	24·390	4·250	2		40. 35. 8·13		2	0·50	8·13	13·14
118	τ^2 Arietis.....	1	3. 15. 33·690	1	0·02	33·690	3·444	1		69. 42. 22·26		1	0·02	22·26	13·17
119	Piazzi III. 54 S.P. .	2	3. 19. 56·790	2	0·36	56·790	4·753	2		31. 33. 23·89		2	0·36	23·89	12·92
120	66 Arietis		3. 21. (8.)					1	1	67. 37 41·86	42·47	2	0·02	42·17	12·68
121	Bradley 471	1	3. 21. 33·540	2	0·25	33·180	6·424	1		17. 4. 47·13		3	0·29	47·01	12·72
	Bradley 471 S.P. ..	1	32·820					2		46·92					
122	f Tauri.....		3. 23. (58.)					2	1	77. 29. 36·00	33·68	3	0·08	35·23	12·62
123	Groombridge 642 ..	1	3. 25. 45·020	1	0·87	45·020	19·012	1		3. 45. 7·26		1	0·87	7·26	12·50
124	ϵ Eridani	1	3. 27. 2·540	1	0·79	2·540	2·822	2		99. 52. 57·20		2	0·09	57·20	12·37
125	7 Tauri	1	3. 27. 2·580	1	0·07	2·580	3·541	1		65. 57. 24·48		1	0·07	24·48	12·34
126	Piazzi III. 94 S.P. .	1	3. 31. 19·680	1	0·38	19·680	5·140	1		27. 11. 26·31		1	0·38	26·31	12·20
127	o Persei.....	1	3. 36. 28·980	1	0·09	28·980	3·741	1	1	58. 6. 34·17	34·95	2	0·09	34·56	11·75
128	γ Camelopardali ...	1	3. 37. 11·850	1	0·87	11·850	6·180			19. 3.					
129	17 Tauri	3	3. 37. 27·323	3	0·56	27·323	3·550	3		66. 16. 53·11		3	0·56	53·11	11·65
130	23 Tauri	1	3. 38. 54·630	1	0·07	54·630	3·552	1		66. 26. 34·29		1	0·07	34·29	11·54
131	η Tauri	1	3. 40. 3·420	1	0·04	3·420	3·553	3	2	66. 16. 59·44	59·17	5	0·05	59·33	11·44
132	27 Tauri.....	3	3. 41. 43·927	3	0·56	43·927	3·554	3		66. 19. 50·28		3	0·56	50·28	11·31
133	Bradley 531.....	1	3. 42. 58·080	1	0·87	58·080	3·037	1		91. 50. 11·84		1	0·87	11·84	11·31
134	ζ Persei	4	3. 46. 16·658	4	0·06	16·658	3·758	4	1	58. 29. 22·28	21·55	5	0·07	22·13	11·00
135	Piazzi III. 177 S.P.	1	3. 46. 24·480	1	0·48	24·480	5·219	2		27. 17. 50·00		2	0·48	50·00	11·09
136	Piazzi III. 160.....	1	3. 49. 13·210	1	0·87	13·210	9·694	1		9. 39. 2·46		1	0·87	2·46	10·88
137	33 Tauri	2	3. 49. 39·255	2	0·04	39·255	+ 3·550	2		67. 11. 21·51		2	0·04	21·51	— 10·79

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			h m s			s	s			° ′ ″	″			″	″
138	ξ Persei	1	3. 50. 51·390	1	0·90	51·390	+ 3·877	1		54. 34. 12·52		1	0·90	12·52	− 10·67
139	γ^1 Eridani		3. 52. (11.)					1		103. 51. 55·28		1	0·09	55·28	10·49
140	36 Tauri.....	5	3. 56. 53·202	5	0·19	53·202	3·580	5		66. 14. 24·64		5	0·19	24·64	10·27
141	A^1 Tauri	1	3. 57. 18·330	1	0·87	18·330	3·535	1	1	68. 15. 41·82	41·12	2	0·05	41·47	10·14
142	A^2 Tauri.....	1	3. 57. 56·320	1	0·87	56·320	3·539	1		68. 19. 49·65		1	0·87	49·65	10·04
143	ψ Tauri	2	3. 59. 16·805	2	0·92	16·805	3·705	2		61. 20. 19·00		2	0·92	19·00	10·10
144	50 Persei		4. 0. (16.)					1	1	52. 17. 22·50	22·21	2	0·07	22·36	9·80
145	Groombridge 774 ..		4. 2. (40.)					2	2	6. 58. 2·91	3·24	4	0·06	3·08	9·83
146	*p* Tauri.....	1	4. 3. 13·220	1	0·02	13·220	3·648	1		63. 50. 49·54		1	0·02	49·54	9·79
147	Groombridge 784 ..	1	4. 4. 58·700	1	0·07	58·700	7·701	1		14. 12. 22·76		1	0·07	22·76	9·65
148	o^1 Eridani.....	1	4. 5. 45·770	1	0·04	45·770	2·923			97. 9.					
149	Piazzi III. 260	1	4. 5. 53·400	1	0·87	53·400	5·220			28. 27.					
150	A Eridani	1	4. 8. 26·850	1	0·91	26·850	2·854	1		100. 34. 5·63		1	0·91	5·63	9·20
151	Piazzi IV. 10	2	4. 8. 55·735	3	0·44	55·750	5·575	2		25. 10. 4·61		3	0·45	4·73	9·31
	Piazzi IV. 10 S.P. .	1	55·780					1		5·08					
152	o^2 Eridani.....	1	4. 9. 31·070	1	0·93	31·070	2·762	1		97. 50. 54·84		1	0·93	54·84	5·84
153	53 Tauri.....	1	4. 12. 4·060	1	0·04	4·060	3·529	1		69. 9. 44·48		1	0·04	44·48	9·08
154	56 Tauri.....	1	4. 12. 12·830	1	0·05	12·830	3·545	1		68. 31. 49·57		1	0·05	49·57	9·08
155	γ Tauri	2	4. 12. 40·810	2	0·50	40·810	3·408	1		74. 40. 33·08		1	0·13	33·08	9·02
156	χ^1 Tauri.....	1	4. 14. 58·650	1	0·87	58·650	3·642	2	1	64. 40. 2·95	2·92	3	0·35	2·94	8·83
157	55 Persei	1	4. 16. 22·560	1	0·87	22·560	3·881	1		56. 9. 40·62		1	0·87	40·62	8·71
158	62 Tauri (2nd Star)	1	4. 16. 27·640	1	0·09	27·640	3·611	1		65. 59. 31·22		1	0·09	31·22	8·75
159	δ^2 Tauri	1	4. 16. 53·420	1	0·07	53·420	3·451	1		72. 50. 51·72		1	0·07	51·72	8·68
160	δ^3 Tauri	3	4. 18. 15·490	3	0·35	15·490	3·464	3		72. 21. 36·37		3	0·35	36·37	8·62
161	Piazzi IV. 82	1	4. 20. 35·620	1	0·04	35·620	3·559	1		68. 39. 40·95		1	0·04	40·95	8·47
162	ε Tauri	1	4. 21. 19·120	1	0·09	19·120	3·493	1	1	71. 5. 55·87	55·44	2	0·96	55·66	8·34
163	Aldebaran	2	4. 28. 44·935	2	0·36	44·935	3·436	8	2	73. 44. 37·97	39·24	10	0·43	38·12	7·60
164	v^7 Eridani.....	1	4. 30. 41·440	1	0·91	41·440	2·331	1		120. 49. 8·45		1	0·91	8·45	7·60
165	Piazzi IV. 148.....	4	4. 33. 30·405	4	0·45	30·405	3·750	4		61. 37. 45·36		4	0·45	45·36	7·35
166	τ Tauri	2	4. 34. 44·620	2	0·52	44·620	3·593	1		67. 17. 5·74		1	0·05	5·74	7·27
167	μ Eridani	2	4. 39. 15·125	2	0·53	15·125	2·998	1		93. 29. 6·23		1	0·98	6·23	6·91
168	*i* Tauri		4. 44. (3.)						1	71. 22.	29·67	1	0·07	29·67	6·49
169	Piazzi IV. 191.....	1	4. 46. 29·990	1	0·05	29·990	7·492	1		15. 55. 41·94		1	0·05	41·94	6·30
170	Piazzi IV. 204 S.P..	1	4. 48. 40·040	1	0·39	40·040	7·389	1		16. 25. 32·48		1	0·39	32·48	6·14
171	ι Aurigæ.....		4. 48. (51.)					2		57. 2. 2·03		2	0·06	2·03	6·10
172	*k* Tauri.....	1	4. 50. 30·370	1	0·05	30·370	3·664	1		65. 8. 41·12		1	0·05	41·12	5·93
173	β Camelopardali....	1	4. 52. 18·220	1	0·15	18·220	5·314	1		29. 44. 36·51		1	0·15	36·51	5·83
174	ζ Aurigæ	1	4. 53. 44·500	1	0·98	44·500	4·182	1	1	49. 6. 33·51	32·47	2	0·09	32·99	5·71
175	Piazzi IV. 254.....	1	4. 56. 37·580	1	0·98	37·580	7·477	1		16. 13. 9·01		1	0·98	9·01	5·44
176	η Aurigæ	1	4. 57. 45·040	1	0·07	45·040	4·197	1		48. 56. 13·24		1	0·07	13·24	5·29
177	Piazzi IV. 269	1	5. 1. 59·210	2	0·75	59·355	9·729	2		10. 55.		2	0·51	6·69	5·07
	Piazzi IV. 269 S.P.	1	59·500							6·69					
178	Groomb. 928 S.P...	1	5. 2. 48·790	1	0·42	48·790	7·341	1		16. 52. 48·39		1	0·42	48·39	4·95
179	μ Aurigæ		5. 4. (52.)					1	1	51. 39. 58·32	59·37	2	0·09	58·85	4·72
180	Groombridge 931 ..	1	5. 6. 31·070	1	0·98	31·070	9·344	2	1	11. 43. 2·72	3·36	3	0·96	2·93	4·64
181	Capella	2	5. 7. 27·485	4	0·40	27·470	4·423	2		44. 7. 56·45		2	0·40	56·45	4·13
	Capella S.P.....	2	27·445					2		52·23					
182	Rigel	3	5. 8. 31·817	3	0·24	31·817	2·880	4		98. 20. 50·60		4	0·28	50·60	4·44
183	Piazzi IV. 311 S.P.	1	5. 9. 13·540	1	0·40	13·540	+ 9·324	1		11. 49. 12·67		1	0·40	12·67	− 4·47

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			h m s			s	s			° ′ ″	″			″	″
184	Piazzi IV. 317.....		5. 10. (12.)					1	1	12. 8. 37·55	36·59	2	0·96	37·07	— 4·30
185	λ Aurigæ.....	1	5. 10. 20·960	1	0·05	20·960	+ 4·210	1		50. 0. 52·46		1	0·05	52·46	3·61
186	Piazzi V. 41	1	5. 13. 8·470	1	0·09	8·470	3·764	1		62. 10. 17·73		1	0·09	17·73	4·01
187	17 Camelopardali...		5. 18. (22.)					1	1	27. 2. 26·74	26·89	2	0·09	26·82	3·62
188	β Tauri.....	4	5. 18. 23·423	4	0·42	23·423	3·789	7		61. 30. 0·94		7	0·51	0·94	3·42
189	γ Orionis	1	5. 18. 25·520	1	0·09	25·520	3·218	1		83. 45. 55·62		1	0·09	55·62	3·58
190	Groombridge 966 ..	1	5. 23. 1·130	1	0·15	1·130	8·022	2	1	15. 2. 38·15	38·35	3	0·69	38·22	3·22
191	δ Orionis	1	5. 25. 37·190	1	0·95	37·190	3·064			90. 23.					
192	Piazzi V. 136	2	5. 28. 4·840	2	0·52	4·840	3·763	2		62. 25. 17·46		2	0·52	17·46	2·73
193	ε Orionis	2	5. 29. 52·365	2	0·57	52·365	3·041	1		91. 17. 0·72		1	0·26	0·72	2·62
194	B. A. C. 1751		5. 29. (54.)					1	1	24. 22. 26·26	26·66	2	0·09	26·46	2·63
195	B. F. 747	2	5. 31. 21·470	2	0·16	21·470	3·811	2		60. 51. 32·41		2	0·16	32·41	2·50
196	Arg. Zone + 16°. No. 835	1	5. 33. 4·270	1	0·05	4·270	3·461	1		73. 40. 18·34		1	0·05	18·34	2·35
197	126 Tauri.....	1	5. 34. 4·260	1	0·09	4·260	3·469	1		73. 31. 57·82		1	0·09	57·82	2·29
198	131 Tauri.....	2	5. 40. 6·015	2	0·11	6·015	3·419	2		75. 33. 34·86		2	0·11	34·86	1·65
199	τ Aurigæ	1	5. 40. 30·880	1	0·05	30·880	4·157			50. 51.					
200	κ Orionis	2	5. 41. 49·680	2	0·53	49·680	2·844			99. 42.					
201	136 Tauri.....	3	5. 45. 28·223	3	0·35	28·223	3·768	3		62. 25. 9·49		3	0·35	9·49	1·20
202	α Orionis	2	5. 48. 24·255	2	0·32	24·255	3·246	2		82. 37. 3·91		2	0·57	3·91	1·01
203	δ Aurigæ S.P.....	1	5. 49. 13·980	1	0·41	13·980	4·932	1		35. 43. 39·90		1	0·41	39·90	0·81
204	β Aurigæ	3	5. 50. 21·717	3	0·16	21·717	4·405	3		45. 4. 3·81		3	0·16	3·81	0·81
205	θ Aurigæ	1	5. 51. 11·740	1	0·98	11·740	4·091	1		52. 47. 58·30		1	0·98	58·30	0·66
206	2 Geminorum	1	5. 59. 11·410	1	0·98	11·410	3·655	1		66. 21. 7·29		1	0·98	7·29	— 0·06
207	39 Camelopardali...	1	5. 59. 55·080	2	0·24	54·950	5·432	1		29. 31. 43·68		2	0·22	43·89	0·00
	39 Camelopardali S.P.	1	54·820					1		44·21					
208	ν Orionis.....	2	6. 0. 26·110	2	0·58	26·110	3·426			75. 13.					
209	40 Camelopardali S.P.	1	6. 4. 26·720	1	0·41	26·720	5·395	1		29. 58. 9·56		1	0·41	9·56	+ 0·43
210	6 Geminorum	1	6. 4. 44·370	1	0·98	44·370	3·640			67. 3.					
211	Piazzi V. 335	1	6. 5. 3·990	1	0·09	3·990	6·624	1		20. 38. 24·41		1	0·09	24·41	0·53
212	η Geminorum.....		6. 7. (20.)					1	1	67. 27. 32·26	33·27	2	0·19	32·77	0·66
213	κ Aurigæ	3	6. 7. 24·700	3	0·40	24·700	3·825	3		60. 27. 29·11		3	0·40	29·11	0·94
214	μ Geminorum		6. 15. (23.)					1		67. 25. 29·11		1	0·25	29·11	1·49
215	β Canis Majoris....	1	6. 17. 11·700	1	0·17	11·700	2·643			107. 53.					
216	47 Aurigæ	1	6. 20. 42·620	1	0·17	42·620	4·492	1		43. 14. 15·23		1	0·17	15·23	1·84
217	Groombridge 1151 .	2	6. 21. 2·355	2	0·53	2·355	9·385	2		11. 54. 37·83		2	0·53	37·83	1·84
218	ν Geminorum.....	1	6. 21. 32·400	1	0·98	32·400	3·562	1	1	69. 42. 39·05	37·72	2	0·19	38·39	1·89
219	Radcliffe 1742 S.P..	2	6. 22. 7·210	2	0·59	7·210	7·648	3		16. 12. 45·54		3	0·55	45·54	1·93
220	Piazzi VI. 114.....	3	6. 22. 28·723	3	0·09	28·723	3·790	3		61. 42. 25·75		3	0·09	25·75	2·06
221	8 Lyncis.....	1	6. 26. 15·550	1	0·17	15·550	5·492	1		28. 24. 44·64		1	0·17	44·64	2·54
222	10 Lyncis.....	1	6. 27. 7·140	1	0·17	7·140	5·497	1		28. 25. 19·82		1	0·17	19·82	2·38
223	49 Aurigæ	3	6. 27. 19·687	3	0·18	19·687	3·782	3		61. 52. 56·20		3	0·18	56·20	2·41
224	41 Camelopardali ..	1	6. 28. 57·500	1	0·98	57·500	5·532	1		27. 58. 20·98		1	0·98	20·98	2·52
225	51 Aurigæ	1	6. 29. 59·810	1	0·06	59·810	4·162	1		50. 30. 4·52		1	0·06	4·52	2·73
226	γ Geminorum.....	5	6. 30. 29·352	5	0·26	29·352	3·466	1	1	73. 29. 44·83	43·43	2	0·04	44·13	2·70
227	Piazzi VI. 178.....	1	6. 30. 53·180	1	0·97	53·180	2·627	1		108. 33. 31·40		1	0·97	31·40	2·69
228	ν^1 Canis Majoris ...	2	6. 30. 54·440	2	0·56	54·440	2·624	2		108. 33. 29·66		2	0·56	29·66	2·69
229	ν^2 Canis Majoris....	4	6. 31. 13·910	4	0·11	13·910	2·616	4		109. 9. 1·69		4	0·11	1·69	2·77
230	54 Aurigæ	1	6. 31. 40·060	1	0·95	40·060	+ 3·787	2		61. 37. 43·31		2	0·91	43·31	+ 2·80

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			h m s			s	s			° ′ ″	″			″	″
231	Sirius	8	6. 39. 38·258	8	0·21	38·258	+ 2·646	6		106. 32. 46·71		6	0·26	46·71	+ 4·70
232	Cephei 51	5	6. 41. 15·468	26	0·57	14·781	30·267	14		2. 45. 55·06		60	0·51	55·40	3·69
	Cephei 51 S.P.	21	14·617					46		55·50					
233	60 Aurigæ	1	6. 44. 38·940	1	0·17	38·940	4·135	1		51. 24. 29·34		1	0·17	29·34	4·03
234	θ Canis Majoris	3	6. 48. 22·900	3	0·44	22·900	2·787	1		101. 53. 0·61		1	0·09	0·61	4·23
235	62 Aurigæ	1	6. 50. 31·770	1	0·05	31·770	4·099	1		51. 46. 42·75		1	0·05	42·75	4·49
236	Groombridge 1245	1	6. 51. 42·040	1	0·05	42·040	6·839	1		19. 5. 28·58		1	0·05	28·58	4·49
237	ε Canis Majoris	1	6. 53. 42·760	1	0·96	42·760	2·357			118. 48. :					
238	ω Geminorum	1	6. 54. 47·660	1	0·04	47·660	3·660	1	1	65. 36. 29·95	31·75	2	0·04	30·85	4·75
239	Piazzi VI. 293	2	6. 54. 58·630	2	0·20	58·630	5·328	2	1	30. 0. 58·39	59·17	3	0·19	58·65	4·79
240	ζ Geminorum	1	6. 56. 41·630	1	0·17	41·630	3·562	1	1	69. 14. 54·36	52·74	2	0·04	53·55	4·92
241	45 Geminorum		7. 1. (11.)					1	1	73. 52. 17·79	17·59	2	0·13	17·69	5·39
242	Arg. Zone + 69°. No. 413	1	7. 1. 33·620	1	0·09	33·620	6·433	1		20. 59. 26·90		1	0·09	26·90	5·32
243	τ Geminorum		7. 3. (10.)					1	1	59. 33. 6·46	7·26	2	0·15	6·86	5·51
244	Piazzi VI. 292	1	7. 4. 39·700	1	0·19	39·700	13·030	1	1	7. 21. 17·77	15·97	2	0·19	16·87	5·60
245	51 Geminorum	2	7. 6. 11·475	2	0·58	11·475	3·451	1		73. 37. 49·64		1	0·04	49·64	5·74
246	λ Geminorum		7. 10. (54.)					1	1	73. 14. 9·54	11·04	2	0·17	10·29	6·11
247	47 Camelopardali	1	7. 11. 19·770	1	0·21	19·770	5·274	1		29. 52. 9·79		1	0·21	9·79	6·15
248	δ Geminorum	1	7. 12. 39·380	1	0·19	39·380	3·591			67. 47. :					
249	Piazzi VII. 67		7. 17. (51.)					1	1	21. 16. 56·87	56·38	2	0·05	56·63	6·75
250	ι Geminorum	4	7. 17. 57·635	4	0·50	57·635	3·736	4		61. 57. 19·78		4	0·50	19·78	6·78
251	63 Geminorum		7. 20. (19.)					1		68. 18. 4·35		1	0·08	4·35	6·99
252	β Canis Minoris	1	7. 20. 22·220	1	0·95	22·220	3·257	1		81. 27. 37·31		1	0·09	37·31	6·94
253	ρ Geminorum		7. 21. (4.)					2	2	57. 58. 9·36	9·40	4	0·16	9·38	6·75
254	Castor	4	7. 26. 37·310	4	0·45	37·310	3·841	7	1	57. 50. 22·55	22·27	8	0·42	22·52	7·48
255	υ Geminorum	4	7. 28. 13·088	4	0·71	13·088	3·708	4		62. 49. 42·50		4	0·71	42·50	7·64
256	Procyon	10	7. 32. 45·418	10	0·42	45·418	3·144	12		84. 27. 22·01		12	0·53	22·01	8·98
257	51 Camelopardali	1	7. 34. 42·200	1	0·26	42·200	5·794	1		24. 14. 56·04		1	0·26	56·04	7·99
258	49 Camelopardali		7. 35. (7.)					2	3	26. 52. 16·42	15·87	5	0·15	16·09	8·16
259	κ Geminorum		7. 36. (53.)					1	1	65. 18. 15·22	14·60	2	0·08	14·91	8·28
260	Pollux	7	7. 37. 39·861	7	0·48	39·861	3·679	7		61. 40. 25·66		7	0·60	25·66	8·35
261	B. F. 1083		7. 42. (12.)					1	1	61. 29. 25·54	23·82	2	0·15	24·68	8·65
262	φ Geminorum	3	7. 45. 50·697	3	0·48	50·697	3·680	3		62. 54. 45·47		3	0·48	45·47	8·99
263	ω^2 Cancri	1	7. 54. 11·200	1	0·05	11·200	3·636	1		64. 34. 4·95		1	0·05	4·95	9·59
264	55 Camelopardali		8. 0. (20.)					1	1	21. 9. 40·89	39·81	2	0·04	40·35	10·05
265	ψ^2 Cancri	2	8. 2. 55·300	2	0·43	55·300	3·624	2		64. 6. 54·33		2	0·43	54·33	10·60
266	56 Camelopardali S.P.	1	8. 5. 17·370	1	0·68	17·370	5·110	1		29. 14. 38·97		1	0·68	38·97	10·43
267	Bradley 1160		8. 6. (51.)					1	1	17. 12. 30·23	29·66	2	0·26	29·95	10·54
268	29 Lyncis S.P.	1	8. 7. 26·330	1	0·74	26·330	5·032	1		30. 2. 53·78		1	0·74	53·78	10·60
269	β Cancri	1	8. 9. 44·140	1	0·19	44·140	3·258	1		80. 25. 50·41		1	0·19	50·41	10·80
270	Piazzi VIII. 30		8. 12. (12.)					1		28. 58. 33·33		1	0·25	33·33	10·94
271	λ Cancri	2	8. 13. 5·995	2	0·28	5·995	3·576	2		65. 35. 9·20		2	0·28	9·20	11·04
272	Piazzi VIII. 46	1	8. 17. 57·090	2	0·48	56·905	5·763	1		22. 17. 37·64		3	0·52	37·99	11·32
	Piazzi VIII. 46 S.P.	1	56·720					2		38·25					
273	o Ursæ Majoris		8. 19. (51.)					1	2	28. 51. 60·14	58·34	3	0·23	58·94	11·62
274	Piazzi VIII. 52	1	8. 20. 29·710	2	0·47	29·670	6·021	1		20. 15. 49·86		2	0·43	49·59	11·54
	Piazzi VIII. 52 S.P.	1	29·630					1		49·18					
275	υ^2 Cancri	1	8. 21. 11·910	1	0·09	11·910	3·567	1		65. 26. 30·48		1	0·09	30·48	11·66
276	29 Cancri	1	8. 21. 38·690	1	0·17	38·690	3·355	1	1	75. 22. 35·95	37·19	2	0·17	36·57	11·63
277	A Ursæ Majoris	1	8. 23. 23·140	1	0·25	23·140	+ 5·451	1		24. 25. 53·23		1	0·25	53·23	+ 11·82

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			h m s			s	s			° ′ ″	″			″	″
278	v^3 Cancri	1	8. 24. 6·850	1	0·05	6·850	+ 3·558	1		65. 29. 55·67		1	0·05	55·67	+ 11·87
279	η Cancri	1	8. 25. 28·670	1	0·09	28·670	3·478	1		69. 8. 7·57		1	0·28	7·57	11·95
280	32 Cancri	1	8. 25. 36·550	1	0·80	36·550	3·555	1		65. 29. 29·73		1	0·80	29·73	11·94
281	Groomb. 1446 S.P..	2	8. 25. 45·185	2	0·68	45·185	6·839	2		15. 56. 10·50		2	0·68	10·50	11·91
282	35 Cancri	1	8. 28. 8·100	1	0·17	8·100	3·462	1		69. 58. 53·38		1	0·17	53·38	12·15
283	Bradley 1211	1	8. 30. 30·210	1	0·29	30·210	3·765	1		56. 45. 48·04		1	0·29	48·04	12·26
284	38 Cancri.....	1	8. 32. 31·650	1	0·09	31·650	3·459	1		69. 46. 57·07		1	0·09	57·07	12·44
285	39 Cancri.....	1	8. 32. 54·790	1	0·17	54·790	3·455	2	2	69. 33. 9·69	9·18	4	0·22	9·44	12·41
286	γ Cancri	2	8. 36. 2·970	2	0·24	2·970	3·480	1		68. 5. 0·63		1	0·88	0·63	12·61
287	A^1 Cancri.....	1	8. 36. 18·890	1	0·25	18·890	3·312	1	1	76. 52. 21·49	19·16	2	0·25	20·33	12·63
288	Groombridge 1463 .	1	8. 37. 1·720	1	0·28	1·720	9·253	2	1	9. 30. 27·04	27·30	3	0·18	27·13	12·70
289	ι^2 Cancri	1	8. 39. 7·680	1	0·16	7·680	3·645	1		60. 47. 4·32		1	0·16	4·32	12·88
290	ε Hydræ (1st Star) .	4	8. 40. 9·280	4	0·21	9·280	3·183	2		83. 7. 26·82		2	0·29	26·82	12·94
291	ε Hydræ (2nd Star).	1	8. 40. 9·370	1	0·29	9·370	3·183	1		83. 7. 25·73		1	0·29	25·73	12·94
292	b Ursæ Majoris	1	8. 43. 3·300	1	0·17	3·300	5·010	1	1	27. 34. 19·94	20·41	2	0·17	20·18	12·92
293	51 Cancri.....	2	8. 44. 51·055	2	0·23	51·055	3·732	3	1	57. 3. 32·34	33·10	4	0·25	33·03	13·19
294	σ^2 Cancri (1st Star)	1	8. 46. 36·810	1	0·29	36·810	3·678	1		58. 56. 53·47		1	0·29	53·47	13·33
295	σ^2 Cancri (2nd Star)	1	8. 46. 36·880	1	0·29	36·880	3·678	1		58. 56. 55·78		1	0·29	55·78	13·33
296	60 Cancri.....	2	8. 49. 5·985	2	0·20	5·985	3·282	2	1	77. 53. 53·30	52·09	3	0·22	52·90	13·51
297	ι Ursæ Majoris S.P.	1	8. 50. 38·480	1	0·71	38·480	4·138	1		41. 28. 8·60		1	0·71	8·60	13·87
298	ρ Ursæ Majoris		8. 51. (14.)					1	1	21. 53. 8·25	9·01	2	0·08	8·63	13·64
299	α Cancri.....	3	8. 51. 38·967	3	0·40	38·967	3·287	1		77. 39. 34·58		1	0·17	34·58	13·70
300	κ Cancri	2	9. 0. 58·485	2	0·10	58·485	3·256			78. 49.					
301	ξ Cancri	3	9. 2. 10·190	3	0·46	10·190	3·460	3		67. 27. 0·99		3	0·46	0·99	14·30
302	c Ursæ Majoris S.P.	1	9. 4. 26·630	1	0·71	26·630	4·815	1		28. 3. 48·43		1	0·71	48·43	14·54
303	Bradley 1299.....	2	9. 6. 28·700	2	0·28	28·700	3·442	2		68. 12. 10·99		2	0·28	10·99	14·62
304	20 Ursæ Majoris...		9. 10. (54.)					1	1	29. 41. 34·68	38·46	2	0·25	36·57	14·98
305	38 Lyncis.....	1	9. 11. 3·690	1	0·31	3·690	3·751	1		52. 40. 10·35		1	0·31	10·35	14·91
306	κ Leonis.....	1	9. 17. 22·390	1	0·16	22·390	3·507	1		63. 16. 50·85		1	0·16	50·85	15·26
307	α Hydræ	5	9. 21. 26·648	5	0·54	26·648	2·947	3		98. 7. 3·06		3	0·46	3·06	15·42
308	τ^1 Hydræ.....	1	9. 22. 48·170	1	0·29	48·170	3·046	1		92. 13. 24·08		1	0·29	24·08	15·55
309	d Ursæ Majoris S.P.	2	9. 23. 23·450	2	0·81	23·450	5·431	2		19. 37. 19·73		2	0·81	19·73	15·51
310	θ Ursæ Majoris	2	9. 24. 29·215	3	0·57	29·157	4·045	2		37. 45. 15·16		3	0·54	15·12	16·19
	θ Ursæ Majoris S.P.	1	29·040					1		14·97					
311	ξ Leonis.....		9. 25. (12.)					1	1	78. 8. 52·88	52·68	2	0·30	52·78	15·73
312	8 Leonis	2	9. 30. 8·635	2	0·51	8·635	3·321	2		73. 0. 10·39		2	0·51	10·39	15·85
313	B. F. 1343 S.P.....	1	9. 31. 30·760	1	0·58	30·760	5·265	2		20. 11. 42·55		2	0·58	42·55	15·99
314	Groombridge 1562 .	1	9. 32. 21·870	1	0·30	21·870	7·491	1		10. 17. 33·99		1	0·30	33·99	16·04
315	o Leonis.....		9. 34. (28.)					1		79. 32. 26·01		1	0·16	26·01	16·19
316	28 Ursæ Majoris ..	1	9. 36. 16·870	1	0·22	16·870	4·691	1		25. 46. 23·20		1	0·22	23·20	16·23
317	ψ Leonis.....	2	9. 36. 55·385	2	0·15	55·385	3·274	2		75. 24. 25·66		2	0·15	25·66	16·29
318	Bradley 1363 S.P...	1	9. 37. 59·590	1	0·78	59·590	4·636	1		26. 10. 20·36		1	0·78	20·36	16·33
319	ε Leonis	1	9. 38. 45·050	1	0·70	45·050	3·418	1		65. 39. 4·82		1	0·70	4·82	16·39
320	μ Leonis.....	1	9. 45. 39·070	1	0·33	39·070	3·422	1		63. 24. 20·15		1	0·28	20·15	16·77
321	19 Leonis Minoris..	1	9. 50. 1·380	1	0·20	1·380	3·699	2		48. 21. 1·40		2	0·18	1·40	16·92
322	π Leonis	1	9. 53. 36·410	1	0·19	36·410	3·176	2		81. 21. 23·54		2	0·20	23·54	17·11
323	Piazzi IX. 230		9. 55. (50.)					1	1	67. 26. 55·90	56·62	2	0·30	56·26	17·19
324	η Leonis.....	3	10. 0. 30·963	3	0·48	30·963	3·277	3		72. 37. 43·03		3	0·48	43·03	17·39
325	Regulus	13	10. 1. 42·795	13	0·40	42·795	+ 3·200	10		77. 25. 20·98		10	0·49	20·98	+ 17·43

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			h m s			s	s			° ′ ″	″			″	″
326	34 Leonis.....	1	10. 4. 54·790	1	0·20	54·790	+ 3·233	1		76. 1. 43·30		1	0·20	43·30	+ 17·69
327	Bradley 1414.....	1	10. 5. 3·180	1	0·22	3·180	3·008	1		96. 42. 5·08		1	0·22	5·08	17·58
328	32 Ursæ Majoris...	1	10. 8. 55·880	1	0·17	55·880	4·438	1		24. 16. 6·98		1	0·17	6·98	17·79
329	37 Leonis.....	1	10. 9. 58·020	1	0·29	58·020	3·228	1		75. 38. 56·75		1	0·29	56·75	17·81
330	39 Leonis.....	1	10. 10. 21·930	1	0·15	21·930	3·314	1		66. 16. 3·66		1	0·15	3·66	17·90
331	22 Sextantis	1	10. 11. 25·160	1	0·22	25·160	2·980	1		97. 26. 43·90		1	0·22	43·90	17·86
332	Piazzi X. 26 S.P.. .	1	10. 11. 29·400	1	0·68	29·400	4·676	1		20. 37. 30·96		1	0·68	30·96	17·91
333	γ^1 Leonis	3	10. 13. 4·717	3	0·50	4·717	3·316	3		69. 31. 36·68		3	0·49	36·68	18·06
334	μ Ursæ Majoris....	1	10. 14. 52·400	1	0·70	52·400	3·600	1		47. 52. 22·05		1	0·70	22·05	17·95
335	Piazzi X. 22 S.P.. .	1	10. 15. 38·740	1	0·68	38·740	7·893	1		6. 48. 26·03		1	0·68	26·03	18·08
336	29 Leonis Minoris..	1	10. 18. 32·170	1	0·15	32·170	3·480	1		53. 56. 19·91		1	0·15	19·91	18·21
337	μ Hydræ.....	1	10. 20. 2·780	1	0·33	2·780	2·898			106. 11.					
338	8 Leonis Minoris ..		10. 20. (39.)					1	1	52. 39. 12·41	11·33	2	0·20	11·87	18·30
339	Bradley 1456.....	1	10. 22. 23·890	1	0·22	23·890	3·033	1		93. 6. 13·13		1	0·22	13·13	18·26
340	36 Ursæ Majoris...	1	10. 22. 36·880	3	0·61	36·767	3·896	1		33. 22. 47·35		3	0·57	46·06	18·26
	36 Ursæ Maj. S.P..	2	36·710					2		44·84					
341	Bradley 1439 S.P...	1	10. 23. 1·650	1	0·68	1·650	6·588	1		8. 51. 45·21		1	0·68	45·21	18·29
342	33 Leonis Minoris .		10. 24. (45.)					1	1	56. 58. 46·80	46·85	2	0·29	46·83	18·34
343	i Leonis.....	1	10. 25. 31·260	1	0·88	31·260	3·211	1		75. 13. 17·84		1	0·88	17·84	18·36
344	ρ Leonis		10. 26. (13.)					1		80. 3. 3·96		1	0·36	3·96	18·43
345	37 Ursæ Maj. S.P..	1	10. 27. 5·680	1	0·68	5·680	3·920	1		32. 16. 28·27		1	0·68	28·27	18·46
346	38 Ursæ Majoris...	1	10. 33. 23·480	1	0·33	23·480	4·185	1		23. 37. 46·51		1	0·33	46·51	18·74
347	39 Leonis Minoris..		10. 33. (25.)					1	1	61. 49. 26·52	26·47	2	0·20	26·50	18·64
348	Piazzi X. 126		10. 34.					1	1	20. 16. 14·66	15·98	5	0·43	14·37	18·71
	Piazzi X. 126 S.P. .	3	5·333	3	0·71	5·333	4·400	3		13·42					
349	l Leonis.....	1	10. 42. 41·120	1	0·34	41·120	3·157	5		78. 47. 37·42		5	0·38	37·42	18·95
350	44 Leonis Minoris..	1	10. 43. 1·400	1	0·15	1·400	3·312	1		61. 22. 0·08		1	0·15	0·08	18·90
351	42 Ursæ Majoris...		10. 43. (31.)					1	1	30. 0. 56·88	60·57	2	0·26	58·73	19·01
352	46 Leonis Minoris..	2	10. 46. 18·975	2	0·33	18·975	3·372	2		55. 6. 42·11		2	0·33	42·11	19·28
353	54 Leonis.....		10. 48. (50.)					1	1	64. 35. 4·82	3·17	2	0·28	4·00	19·09
354	Bradley 1508.....	1	10. 49. 53·690	1	0·30	53·690	5·022	3	2	11. 33. 39·49	40·06	5	0·20	39·72	19·16
355	47 Ursæ Majoris...	2	10. 52. 27·750	2	0·28	27·750	3·384	2		48. 54. 9·29		2	0·28	9·29	19·13
356	b Leonis.....	1	10. 55. 39·280	1	0·33	39·280	3·213	1		69. 8. 59·40		1	0·33	59·40	19·24
357	α Ursæ Majoris	5	10. 55. 59·802	8	0·70	59·814	3·760	8	2	27. 34. 28·95	29·52	13	0·53	29·11	19·37
	α Ursæ Majoris S.P.	3	59·833					3		29·31					
358	χ Leonis.....		10. 58. (34.)					3		81. 59. 18·97		3	0·26	18·97	19·42
359	Lalande 21272.....	1	11. 0. 6·440	1	0·22	6·440	3·187	1		71. 35. 13·80		1	0·22	13·80	19·37
360	67 Leonis.....		11. 2. (6.)					1	1	64. 39. 56·71	55·52	2	0·28	56·12	19·43
361	66 Leonis.....	1	11. 2. 50·830	1	0·36	50·830	3·072	1		90. 39. 22·89		1	0·36	22·89	19·48
362	Radcliffe 2630.....		11. 4.					2	2	21. 2. 61·42	62·08	6	0·39	61·30	19·46
363	Radcliffe 2630 S.P..	2	10·730	2	0·81	10·730	3·910	2		59·93					
364	δ Leonis	1	11. 7. 27·420	1	0·19	27·420	3·201	5	4	68. 47. 30·62	30·48	9	0·31	30·56	19·67
365	Piazzi XI. 12	2	11. 7. 32·080	2	0·25	32·080	3·127	2		81. 15. 20·51		2	0·25	20·51	19·65
366	θ Leonis.....	1	11. 7. 40·800	1	0·29	40·800	3·156	3	3	73. 53. 14·80	14·92	6	0·28	14·86	19·59
367	δ Crateris	2	11. 13. 5·485	2	0·58	5·485	2·995	1		104. 6. 7·53		1	0·26	7·53	19·46
368	σ Leonis.....	6	11. 14. 41·433	6	0·39	41·433	3·095	6		83. 17. 9·37		6	0·39	9·37	19·69
369	Piazzi XI. 43 S.P. .	1	11. 15. 24·780	1	0·78	24·780	3·623	1		24. 59. 7·73		1	0·78	7·73	19·73
370	71 Leonis.....	1	11. 15. 56·290	1	0·22	56·290	3·156	3	2	71. 52. 37·88	39·35	5	0·29	38·47	19·68
371	81 Leonis.....	1	11. 19. 5·190	1	0·33	5·190	3·141	1	1	72. 51. 24·61	23·62	2	0·33	24·12	19·75
372	τ Leonis.....	2	11. 21. 30·510	2	0·63	30·510	+ 3·085	2		86. 27. 18·39		2	0·63	18·39	+ 19·79

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			h m s			s	s			° ′ ″	″			″	″
373	Groomb. 1782 S.P. .	1	11. 22. 56·250	1	0·76	56·250	+ 4·567	1		8. 11. 5·41		1	0·76	5·41	+ 19·79
374	λ Draconis		11. 23. (57.)					1	1	19. 58. 45·50	45·72	2	0·21	45·61	19·87
375	86 Leonis.....	1	11. 23. 57·640	1	0·29	57·640	3·144	3	3	70. 54. 7·90	7·53	6	0·29	7·72	19·80
376	B. F. 1620 S.P.....	1	11. 25. 15·120	1	0·84	15·120	3·447	1		28. 13. 32·55		1	0·84	32·55	19·82
377	88 Leonis	1	11. 25. 17·680	1	0·32	17·680	3·104	1		74. 56. 20·92		1	0·32	20·92	20·01
378	89 Leonis.....	1	11. 27. 58·090	1	0·29	58·090	3·073	1		86. 14. 44·31		1	0·29	44·31	19·97
379	2 Draconis.....	1	11. 28. 41·860	3	0·59	41·797	3·590	1	1	19. 58. 54·57	54·03	4	0·49	54·00	19·97
	2 Draconis S.P.....	2	41·765					2		53·55					
380	Piazzi XI. 111.....	1	11. 29. 43·000	1	0·36	43·000	3·167	1		61. 31. 40·04		1	0·36	40·04	19·93
381	υ Leonis.....	2	11. 30. 32·865	2	0·62	32·865	3·069	1		90. 7. 59·54		1	0·89	59·54	19·86
382	3 Draconis.....	2	11. 35. 29·040	2	0·30	29·040	3·409	2	1	22. 33. 48·17	49·62	3	0·30	48·65	19·88
383	Piazzi XI. 146	1	11. 36. 59·850	1	0·33	59·850	3·196	1		47. 35. 2·76		1	0·33	2·76	19·95
384	Groombridge 1826 .	1	11. 40. 22·150	1	0·34	22·150	3·288	2	2	27. 54. 10·06	10·23	4	0·32	10·15	19·98
385	β Leonis.....	6	11. 42. 40·977	6	0·56	40·977	3·064	6	1	74. 43. 45·60	44·87	7	0·41	45·50	20·10
386	β Virginis	1	11. 44. 11·030	1	0·89	11·030	3·124	2		87. 31. 49·10		2	0·55	49·10	20·29
387	Groombridge 1830 .	4	11. 45. 46·130	4	0·27	46·130	3·483	4		51. 23. 5·00		4	0·27	5·00	25·72
388	γ Ursæ Majoris ...	5	11. 47. 14·860	5	0·49	14·860	3·187	5		35. 36. 36·49		6	0·54	36·46	20·02
	γ Ursæ Majoris S.P.		11. 47. (14.)					1		36·23					
389	o Leonis.....	1	11. 49. 14·790	1	0·26	14·790	3·090	1		73. 39. 27·04		1	0·26	27·04	19·97
390	Groombridge 1838 .	2	11. 50. 20·930	2	0·33	20·930	3·179	1	1	27. 45. 14·08	13·08	2	0·34	13·58	20·04
391	Piazzi XI. 207.....	2	11. 52. 39·735	2	0·26$^{m}_{m}$	39·735	3·056	2		88. 46. 26·61		2	0·26	26·61	19·98
392	Groombridge 1845 .		11. 53.					1	1	8. 26. 60·38	58·76	3	0·45	58·90	20·05
	Groomb. 1845 S.P..	1	44·510	1	0·78	44·510	3·318	1		57·56					
393	π Virginis	1	11. 54. 28·090	1	0·21	28·090	3·077			82. 41.					
394	Groombridge 1853 .		11. 59. (20.)						1	26. 22.	7·37	1	0·29	7·37	20·06
395	10 Virginis	5	12. 3. 17·012	5	0·29	17·012	3·072	5		87. 24. 0·46		5	0·29	0·46	20·26
396	ε Corvi	4	12. 3. 41·865	4	0·27	41·865	3·076	3		111. 55. 25·61		3	0·23	25·61	20·04
397	3 Comæ	1	12. 4. 9·230	1	0·32	9·230	3·069	1		72. 29. 41·87		1	0·32	41·87	20·04
398	68 Ursæ Majoris S.P.	1	12. 5. 30·520	1	0·71	30·520	3·020	1		32. 14. 56·65		1	0·71	56·65	20·11
399	4 Comæ	1	12. 5. 30·650	1	0·36	30·650	3·052	1		63. 25. 58·97		1	0·36	58·97	20·09
400	Bradley 1634.....		12. 6.					2	1	11. 41. 20·09	21·48	4	0·43	19·97	20·02
	Bradley 1634 S.P. .	1	19·270	1	0·78	19·270	2·901	1		18·22					
401	δ Ursæ Majoris S.P.	1	12. 9. 13·880	1	0·76	13·880	3·002	1		32. 16. 21·27		1	0·76	21·27	20·08
402	6 Comæ	2	12. 9. 39·250	2	0·35	39·250	3·050	2	1	74. 24. 18·45	17·63	3	0·35	18·18	20·07
403	7 Comæ		12. 10. (0.)					1	1	65. 21. 35·03	36·68	2	0·30	35·86	20·04
404	Piazzi XII. 35.....	1	12. 12. 6·620	1	0·36	6·620	3·091	1		98. 12. 25·64		1	0·36	25·64	20·10
405	8 Comæ	2	12. 13. 0·235	2	0·30	0·235	3·038	2		66. 16. 15·34		2	0·30	15·34	20·04
406	Bradley 1650 S.P...	2	12. 13. 12·265	2	0·77	12·265	2·789	2		14. 8. 41·15		2	0·77	41·15	20·00
407	η Virginis	1	12. 13. 30·610	1	0·34	30·610	3·065	5		89. 58. 18·61		5	0·26	18·61	20·05
408	12 Comæ	3	12. 16. 13·207	3	0·32	13·207	3·023	4	1	63. 27. 36·28	35·37	5	0·33	36·10	20·01
409	Piazzi XII. 75		12. 18. (57.)					2	2	65. 22. 48·21	46·69	4	0·29	47·45	20·13
410	Groombridge 1888 .		12. 19. (15.)					1	1	25. 30. 17·75	18·01	2	0·29	17·88	19·99
411	72 Ursæ Majoris ..	1	12. 20. 33·180	1	0·36	33·180	2·916	1		34. 8. 54·05		1	0·36	54·05	20·00
412	Piazzi XII. 91	1	12. 21. 26·770	1	0·39	26·770	3·065	1		93. 55. 24·24		1	0·39	24·24	20·00
413	δ^{2} Corvi	2	12. 23. 23·895	2	0·36	23·895	3·104	1		105. 49. 7·36		1	0·31	7·36	20·10
414	7 Canum Venaticûm	2	12. 24. 7·795	2	0·35	7·795	2·877	2		37. 46. 27·51		2	0·35	27·51	19·95
515	4 Draconis	1	12. 24. 37·260	3	0·58	37·320	2·681	3	2	20. 6. 22·84	21·52	7	0·40	21·90	20·03
	4 Draconis S.P.....	2	37·350					2		20·37					
416	21 Comæ		12. 24. (46.)					1	1	64. 44. 31·20	29·27	2	0·22	30·24	19·99
417	β Canum Venaticûm	1	12. 27. 48·280	1	0·40	48·280	+ 2·858	1		47. 57. 48·48		1	0·40	48·48	+ 19·61

No.	Star's Name.	Number of Obs. of R.A.	Mean R.A. 1875, Jan. 1.	Whole Number of Obs. of R.A.	Fraction of Year for Mean of Obs.	Concluded Seconds of R.A.	Annual Variation in R.A.	Number of Obs. of N.P.D. D.	N.	Mean N.P.D. 1875, Jan. 1. D.	R.	Whole Number of Obs. of N.P.D.	Fraction of Year for Mean of Obs.	Concluded Seconds of N.P.D.	Annual Variation in N.P.D.
			h m s			s	s			° ′ ″	″			″	″
418	β Corvi	2	12. 27. 49·400	2	0·35	49·400	+ 3·132	1		112. 42. 16·78		1	0·38	16·78	+ 19·98
419	κ Draconis		12. 28. (8.)					5	5	19. 31. 21·20	22·14	10	0·32	21·67	19·93
420	23 Comæ	1	12. 28. 37·350	1	0·36	37·350	3·013	1		66. 40. 55·63		1	0·36	55·63	19·90
421	6 Draconis	1	12. 29. 25·830	3	0·63	25·993	2·600	1		19. 17. 20·75		2	0·51	20·30	19·90
	6 Draconis S.P.	2	26·075					1		19·63					
422	Piazzi XII. 143	1	12. 32. 17·710	1	0·37	17·710	3·080	1		93. 41. 7·50		1	0·37	7·50	19·81
423	26 Comæ	1	12. 32. 54·200	1	0·33	54·200	2·994	2	1	68. 14. 59·60	58·99	3	0·30	59·40	19·84
424	γ^1 Virginis	3	12. 35. 19·480	3	0·19	19·480	3·038	3		90. 45. 44·13		3	0·19	44·13	19·87
425	γ^2 Virginis	2	12. 35. 19·610	2	0·18	19·610	3·038	2		90. 45. 49·27		2	0·18	49·27	19·87
426	ρ Virginis	1	12. 35. 33·370	1	0·38	33·370	3·036	1		79. 4. 30·40		1	0·42	30·40	19·91
427	76 Ursæ Majoris	1	12. 36. 5·830	1	0·36	5·830	2·649	4	3	26. 36. 1·52	2·12	7	0·30	1·78	19·85
428	34 Virginis	2	12. 40. 56·095	2	0·39	56·095	3·024	2	1	77. 21. 28·69	28·54	3	0·39	28·64	19·80
429	Piazzi XII. 183	3	12. 41. 5·863	3	0·32	5·863	3·090	3		95. 37. 1·24		3	0·32	1·24	19·73
430	35 Virginis	2	12. 41. 29·480	2	0·27	29·480	3·053			85. 44.					
431	Groomb. 1926 S.P.	1	12. 41. 58·140	1	0·75	58·140	2·584	1		26. 32. 10·35		1	0·75	10·35	19·72
432	7 Draconis S.P.	1	12. 42. 27·620	1	0·76	27·620	2·520	1		22. 31. 36·98		1	0·76	36·98	19·70
433	30 Comæ		12. 43. (11.)					1	1	61. 46. 0·18	0·68	2	0·36	0·43	19·65
434	B. F. 1774 S.P.	1	12. 43. 12·670	1	0·68	12·670	2·620	1		28. 59. 51·44		1	0·68	51·44	19·70
435	Piazzi XII. 196	1	12. 44. 52·600	1	0·39	52·600	3·109	1		99. 39. 25·17		1	0·39	25·17	19·74
436	31 Comæ	1	12. 45. 36·470	1	0·42	36·470	2·934								
437	38 Virginis	1	12. 46. 47·120	1	0·14	47·120	3·070	1		92. 52. 21·74		1	0·14	21·74	19·67
438	35 Comæ		12. 47. (8.)					2	2	68. 4. 31·84	29·89	4	0·28	30·87	19·69
439	41 Virginis	1	12. 47. 33·350	1	0·38	33·350	3·016	1	1	76. 54. 6·06	5·80	2	0·38	5·93	19·67
440	ψ Virginis	1	12. 47. 51·210	1	0·97	51·210	3·113	1		98. 51. 32·23		1	0·97	32·23	19·66
441	Bradley 1730		12. 48. (5.)					1	1	5. 54. 9·71	9·35	2	0·29	9·53	19·60
442	α Canum Venaticûm		12. 50. (10.)					4	7	51. 0. 22·08	22·46	11	0·34	22·32	19·52
443	8 Draconis		12. 50.					1	1	23. 52. 60·19	59·81	3	0·46	60·00	19·63
	8 Draconis S.P.	1	29·580	1	0·96	29·580	2·427	1		60·01					
444	9 Draconis		12. 55. (11.)					1	1	22. 43. 41·33	41·62	2	0·38	41·48	19·50
445	ϵ Virginis	4	12. 55. 57·288	4	0·39	57·288	2·988	4	1	78. 22. 7·17	6·42	5	0·38	7·02	19·43
446	Piazzi XII. 278 S.P.	1	13. 1. 26·320	1	0·96	26·320	2·410	1		27. 17. 16·62		1	0·96	16·62	19·37
447	B. F. 1805	3	13. 2. 1·443	3	0·34	1·443	3·124	3		98. 18. 51·35		3	0·34	51·35	19·33
448	θ Virginis		13. 3. (28.)					2		94. 52. 14·33		2	0·22	14·33	19·33
449	58 Virginis	1	13. 10. 54·260	1	0·37	54·260	3·136	1		99. 53. 12·64		1	0·37	12·64	19·09
450	Spica	13	13. 18. 36·519	13	0·53	36·519	3·151	12		100. 30. 27·93		12	0·56	27·93	18·93
451	ζ^1 Ursæ Majoris	1	13. 18. 53·320	2	0·54	53·270	2·431	1		34. 25. 17·53		2	0·50	16·36	18·92
	ζ^1 Ursæ Majoris S.P.	1	53·220					1		14·59					
452	ζ^2 Ursæ Majoris	1	13. 18. 54·280	2	0·54	54·220	2·428	1		34. 25. 29·80		2	0·50	28·83	18·93
	ζ^2 Ursæ Majoris S.P.	1	54·160					1		27·37					
453	Piazzi XIII. 96	1	13. 21. 42·940	1	0·98	42·940	2·105	1		26. 5. 48·35		1	0·98	48·35	18·79
454	70 Virginis		13. 22. (18.)					1	1	75. 33. 11·40	11·18	2	0·36	11·29	19·34
455	Piazzi XIII. 110	1	13. 23. 51·580	1	0·29	51·580	2·224	1		29. 24. 28·81		1	0·29	28·81	18·75
456	B. F. 1857 (2nd Star)	1	13. 24. 56·540	1	0·33	56·540	2·848	1		65. 7. 5·09		1	0·33	5·09	18·69
457	h Virginis	2	13. 26. 23·110	2	0·30	23·110	3·151	3		99. 31. 11·25		3	0·52	11·25	18·67
458	ζ Virginis	4	13. 28. 19·435	4	0·52	19·435	3·053	4		89. 57. 21·64		4	0·55	21·64	18·52
459	Bradley 1794	1	13. 31. 37·870	1	0·29	37·870	2·373	1		36. 40. 24·02		1	0·29	24·02	18·48
460	Groombridge 2029		13. 34. (11.)					1	1	18. 7. 16·85	17·28	2	0·41	17·07	18·39
461	m Virginis	3	13. 35. 3·193	3	0·58	3·193	3·138	1		98. 4. 16·64		1	0·29	16·64	18·36
462	Piazzi XIII. 184	1	13. 37. 36·380	1	0·40	36·380	1·861	1	1	24. 32. 45·64	44·85	2	0·40	45·25	18·53
463	86 Virginis	2	13. 39. 16·710	2	0·30	16·710	+ 3·186	2		101. 47. 56·38		2	0·30	56·38	+ 18·19

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			h m s			s	s			° ′ ″	″			″	″
464	3 Boötis	1	13. 40. 55·040	1	0·36	55·040	+ 2·785	1	1	63. 40. 11·57	11·76	2	0·37	11·67	+ 18·19
465	τ Boötis	2	13. 41. 19·325	2	0·73	19·325	2·852	3		71. 55. 9·49		3	0·65	9·49	18·08
466	84 Ursæ Majoris	1	13. 41. 55·760	1	0·39	55·760	2·267	1		34. 56. 30·42		1	0·39	30·42	18·21
467	Groombridge 2053	1	13. 42. 8·640	1	0·33	8·640	0·177	1		11. 18. 34·90		1	0·33	34·90	18·03
468	η Ursæ Majoris	3	13. 42. 36·840	5	0·64	36·824	2·372	4		40. 3. 43·68		6	0·64	43·80	18·11
	η Ursæ Majoris S.P.	2	36·800					2		44·29					
469	υ Boötis	1	13. 43. 26·910	1	0·36	26·910	2·893	2	1	73. 34. 51·70	53·32	3	0·39	52·24	18·09
470	B. F. 1905	1	13. 45. 38·140	1	0·34	38·140	2·651	1		54. 42. 50·46		1	0·34	50·46	17·96
471	Groombridge 2055		13. 45. (40.)					1	1	27. 53. 13·25	12·40	2	0·36	12·83	17·96
472	Piazzi XIII. 263	1	13. 45. 59·300	1	0·98	59·300	2·087	1		6. 37. 12·34		1	0·98	12·34	18·04
473	*i* Draconis	1	13. 47. 46·850	1	0·33	46·850	1·755	2	1	24. 39. 31·31	30·73	3	0·35	31·12	17·92
474	η Boötis	4	13. 48. 43·990	4	0·52	43·990	2·858	6	2	70. 58. 29·35	29·70	8	0·46	29·44	18·20
475	Piazzi XIII. 264	1	13. 52. 37·840	1	0·34	37·840	2·903	2	1	74. 44. 22·36	20·93	3	0·39	21·88	17·87
476	τ Virginis	1	13. 55. 17·010	1	0·31	17·010	3·049			87. 51.					
477	11 Boötis	1	13. 55. 30·330	1	0·33	30·330	2·724	2	1	62. 0. 31·71	30·39	3	0·37	31·27	17·54
478	Piazzi XIII. 286	1	13. 57. 41·050	1	0·97	41·050	3·243	1		104. 22. 10·61		1	0·97	10·61	17·50
479	Piazzi XIII. 306	1	13. 59. 5·260	1	0·98	5·260	1·336	2	1	20. 43. 8·71	9·41	3	0·57	8·94	17·45
480	α Draconis		14. 1. (0.)					2	2	25. 1. 34·71	34·54	4	0·36	34·63	17·32
481	Piazzi XIII. 317	1	14. 4. 0·920	1	0·38	0·920	3·261	1		105. 42. 37·74		1	0·38	37·74	17·25
482	*d* Boötis		14. 4. (42.)					2	2	64. 18. 55·82	55·29	4	0·38	55·56	17·21
483	3 Ursæ Minoris	1	14. 5. 57·920	1	0·98	57·920	0·432	1		14. 48. 48·79		1	0·98	48·79	17·03
484	Lacaille 5869	1	14. 7. 47·190	1	0·41	47·190	3·442	1		118. 41. 45·11		1	0·41	45·11	16·53
485	15 Boötis	1	14. 8. 43·610	1	0·36	43·610	2·941	1		79. 18. 35·78		1	0·36	35·78	17·15
486	Groomb. 2091 S.P.	1	14. 9. 44·960	1	0·95	44·960	1·119			19. 58.					
487	Arcturus	11	14. 9. 57·619	11	0·63	57·619	2·734	17	6	70. 9. 57·18	56·46	23	0·57	56·99	18·84
488	B. A. C. 4739	1	14. 11. 43·720	1	0·36	43·720	3·310	1		108. 8. 10·65		1	0·36	10·65	16·83
489	λ Virginis	2	14. 12. 20·845	2	0·15	20·845	3·235	3		102. 47. 39·36		3	0·18	39·36	16·78
490	18 Boötis	1	14. 13. 13·360	1	0·41	13·360	2·903	1		76. 25. 4·38		1	0·41	4·38	16·75
491	20 Boötis	1	14. 13. 50·170	1	0·46	50·170	2·840	2		73. 7. 10·01		2	0·46	10·01	16·63
492	Groombridge 2108	1	14. 18. 42·620	1	0·42	42·620	1·154	2	1	21. 37. 38·08	37·02	3	0·36	37·73	16·49
493	*f* Boötis	1	14. 20. 38·590	1	0·26	38·590	2·796			70. 12.					
494	52 Hydræ	1	14. 20. 51·280	1	0·41	51·280	3·494	1		118. 55. 39·55		1	0·41	39·55	16·44
495	Piazzi XIV. 103	2	14. 24. 28·435	2	0·40	28·435	2·575	3		57. 39. 5·62		3	0·43	5·62	16·18
496	ρ Boötis	2	14. 26. 26·550	2	0·65	26·550	2·587	3	2	59. 4. 44·85	44·87	5	0·49	44·86	15·96
497	5 Ursæ Minoris		14. 27. (48.)					1	1	13. 44. 54·31	54·90	2	0·33	54·61	16·05
498	Piazzi XIV. 128	2	14. 29. 31·810	2	0·44	31·810	2·467	3		52. 49. 26·56		3	0·45	26·56	15·99
499	ζ Boötis		14. 35. (10.)					2	2	75. 44. 5·33	4·34	4	0·48	4·84	15·63
500	ϵ^1 Centauri	1	14. 36. 1·030	1	0·41	1·030	3·645	1		124. 37. 56·37		1	0·41	56·37	15·85
501	34 Boötis		14. 37. (55.)					1	1	62. 56. 22·74	23·35	2	0·37	23·05	15·47
502	5 Libræ	1	14. 39. 4·370	1	0·30	4·370	3·298	1		104. 55. 51·24		1	0·30	51·24	15·43
503	108 Virginis	2	14. 39. 8·190	2	0·33	8·190	3·040	2		88. 45. 13·94		2	0·33	13·94	15·36
504	ϵ^2 Boötis	3	14. 39. 31·650	3	0·71	31·650	2·619	3	1	62. 23. 52·13	51·63	4	0·62	52·01	15·38
505	8 Libræ	1	14. 43. 46·540	1	0·31	46·540	3·308	1		105. 28. 34·21		1	0·31	34·21	15·22
506	Bradley 1895	3	14. 44. 35·583	3	0·40	35·583	3·338	4		107. 16. 6·41		4	0·42	6·41	15·27
507	Piazzi XIV. 193	1	14. 44. 35·610	1	0·42	35·610	2·594	1		60. 51. 54·96		1	0·42	54·96	15·12
508	6 Ursæ Minoris	1	14. 45. 12·460	1	0·37	12·460	0·244	1		17. 30. 45·24		1	0·37	45·24	15·08
509	ξ^2 Libræ		14. 49. (59.)					1		100. 54. 12·07		1	0·32	12·07	14·82
510	W. B. XIV. 941	1	14. 50. 58·090	1	0·31	58·090	+ 3·087	1		90. 55. 32·03		1	0·31	32·03	+ 14·73

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			h m s			s	s			° ′ ″	″			″	″
511	β Ursæ Minoris	5	14. 51. 5·420	7	0·70	5·439	− 0·243	9	5	15. 20. 0·84	1·13	16	0·55	0·87	+ 14·75
	β Ursæ Minoris S.P.	2	5·485					2		0·13					
512	40 Boötis	1	14. 54. 49·320	1	0·48	49·320	+ 2·301	2		50. 14. 15·99		2	0·48	15·99	14·44
513	Piazzi XIV. 260...	1	14. 55. 36·020	2	0·66	36·105	0·943	1		23. 34. 9·41		2	0·61	9·37	14·40
	Piazzi XIV. 260 S.P.	1	36·180					1		9·31					
514	β Boötis		14. 57. (14.)						1	49. 6.	55·94	1	0·36	55·94	14·41
515	ψ Boötis	1	14. 59. 5·300	1	0·38	5·300	2·570			62. 33.					
516	ν^2 Libræ	1	14. 59. 50·580	1	0·45	50·580	3·336	2		105. 59. 54·48		2	0·45	54·48	14·20
517	9 Ursæ Minoris....	1	15. 0. 17·970	1	0·37	17·970	0·051	1		17. 44. 45·79		1	0·37	45·79	14·03
518	δ Boötis		15. 3. (0.)					1	1	63. 13. 7·04	7·96	2	0·32	7·50	14·01
519	ι^1 Libræ	1	15. 5. 5·890	1	0·48	5·890	3·409	1		109. 19. 0·28		1	0·36	0·28	13·90
520	Piazzi XV. 19	4	15. 9. 8·300	4	0·36	8·300	3·459	4		111. 56. 6·08		4	0·36	6·08	13·70
521	χ Boötis		15. 9. (15.)					2	2	60. 22. 13·93	15·91	4	0·46	14·92	13·57
522	δ Boötis	1	15. 10. 27·720	1	0·88	27·720	2·421	2	1	56. 13. 4·70	4·52	3	0·54	4·64	13·61
523	Groombridge 2214 .	1	15. 13. 12·780	1	0·36	12·780	0·623	5	5	22. 10. 42·01	42·96	10	0·42	42·49	13·34
524	σ^2 Libræ		15. 16. (3.)					2		104. 41. 9·64		2	0·45	9·64	13·12
525	γ^2 Ursæ Minoris ...		15. 20. (56.)					1	1	17. 43. 17·55	16·17	2	0·34	16·86	12·77
526	β Coronæ.....		15. 22. (40.)					6	6	60. 27. 44·41	44·38	12	0·43	44·40	12·63
527	Groombridge 2241 .	2	15. 25. 22·875	2	0·36	22·875	1·181	2		28. 53. 52·52		2	0·36	52·52	12·53
528	Piazzi XV. 96.....	2	15. 25. 26·005	2	0·46	26·005	3·427	4		109. 14. 33·93		4	0·46	33·93	12·60
529	α Coronæ	2	15. 29. 23·740	2	0·23	23·740	2·539			62. 51.					
530	40 Libræ	1	15. 30. 58·920	1	0·48	58·920	3·664	2		119. 21. 51·03		2	0·48	51·03	12·22
531	42 Libræ	2	15. 32. 53·690	2	0·27	53·690	+ 3·533	3		113. 24. 35·11		3	0·33	35·11	12·03
532	θ Ursæ Minoris	1	15. 35. 9·800	2	0·27	10·005	− 1·928	3	1	12. 14. 6·68	7·39	5	0·33	6·56	11·84
	θ Ursæ Minoris S.P.	1	10·210					1		5·39					
533	Groombridge 2275 .	1	15. 36. 31·460	1	0·38	31·460	3·667	1		9. 8. 19·33		1	0·38	19·33	11·75
534	Groombridge 2276 .	1	15. 36. 44·310	1	0·38	44·310	− 3·672	1		9. 8. 14·74		1	0·38	14·74	11·74
535	α Serpentis	3	15. 38. 6·663	3	0·27	6·663	+ 2·951			83. 10.					
536	Groombridge 2286 .		15. 40. (22.)					4	4	7. 19. 28·06	27·86	8	0·47	27·96	11·48
537	Piazzi XV. 198....	1	15. 44. 45·860	2	0·20	45·945	0·923	1		27. 0. 49·45		2	0·23	49·15	11·21
	Piazzi XV. 198 S.P.	1	46·030					1		48·70					
538	κ Coronæ	1	15. 46. 31·290	1	0·43	31·290	2·256	3	2	53. 57. 13·70	15·22	5	0·46	14·31	11·38
539	3 Scorpii	1	15. 47. 9·410	1	0·38	9·410	+ 3·588	1		114. 52. 13·34		1	0·38	13·34	11·17
540	ζ Ursæ Minoris....	1	15. 48. 33·730	2	0·28	33·935	− 2·263	2		11. 49. 19·63		3	0·35	19·27	10·96
	ζ Ursæ Minoris S.P.	1	34·140					1		18·56					
541	Piazzi XV. 212....		15. 49. (4.)					1	1	69. 19. 17·67	16·41	2	0·42	17·04	10·84
542	γ Serpentis.....	2	15. 50. 40·770	2	0·38	40·770	+ 2·768	1		73. 55. 45·58		1	0·43	45·58	12·00
543	ϵ Coronæ		15. 52. (24.)					1	1	62. 45. 32·13	28·52	2	0·42	30·33	10·65
544	δ Scorpii	1	15. 52. 56·620	1	0·38	56·620	3·537	1		112. 15. 49·38		1	0·38	49·38	10·56
545	3 Herculis	1	15. 54. 38·870	1	0·42	38·870	2·974	1		85. 13. 15·49		1	0·42	15·49	10·43
546	r Herculis	2	15. 55. 37·295	2	0·44	37·295	2·694	3		71. 50. 4·64		3	0·45	4·64	10·18
547	Piazzi XV. 237....	1	15. 55. 47·510	1	0·36	47·510	3·613	1		115. 30. 51·58		1	0·36	51·58	10·47
548	ρ Coronæ	1	15. 56. 15·890	1	0·50	15·890	2·295	2		56. 19. 5·83		2	0·50	5·83	11·06
549	π Serpentis		15. 56. (54.)					2	2	66. 50. 50·40	50·39	4	0·51	50·40	10·22
550	17 Ursæ Minoris...		15. 58. (0.)					2	2	14. 4. 6·25	5·67	4	0·46	5·96	10·20
551	β^1 Scorpii.....	1	15. 58. 10·250	1	0·38	10·250	3·478			109. 27.					
552	Piazzi XV. 266....		15. 58. (43.)					2	2	53. 1. 20·61	20·34	4	0·48	20·48	10·15
553	Piazzi XV. 265....	1	16. 0. 30·580	1	0·39	30·580	3·648	1		115. 59. 22·96		1	0·39	22·96	10·06
554	Lacaille 6710.....	1	16. 1. 15·930	1	0·36	15·930	+ 3·573	1		113. 20. 58·84		1	0·36	58·84	9·93
555	κ Herculis		16. 2. (26.)					2	2	72. 37. 7·82	7·63	4	0·46	7·73	+ 9·84

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			h m s			s	s			° ′ ″	″			″	″
	Groombridge 2320 .		16. 5.					1	1	21. 51. 36·88	37·36	3	0·34	32·90	+ 9·50
556	Groomb. 2320 S.P..	1	59·420	1	0·08	59·420	+ 0·137	1		35·22					
557	Piazzi XVI. 10....	1	16. 6. 19·590	1	0·08	19·590	3·523	1		111. 4. 45·35		1	0·08	45·35	9·59
558	δ Ophiuchi	4	16. 7. 47·740	4	0·33	47·740	3·136			93. 22.					
559	σ Coronæ	1	16. 9. 59·980	1	0·37	59·980	2·238	1		55. 49. 25·77		1	0·37	25·77	9·30
560	υ Coronæ		16. 11. (44.)					4	4	60. 32. 20·78	21·67	8	0·46	21·23	9·18
561	σ Scorpii	2	16. 13. 35·555	2	0·38	35·555	+ 3·634	4		115. 17. 24·26		4	0·33	24·26	8·96
562	19 Ursæ Minoris...	1	16. 14. 25·020	1	0·38	25·020	− 1·831	5	4	13. 48. 32·31	31·16	9	0·48	31·80	8·91
563	Groombridge 2332 .	1	16. 15. 10·150	1	0·39	10·150	+ 0·990	1		29. 56. 30·43		1	0·39	30·43	8·86
564	γ Herculis	3	16. 16. 24·347	3	0·45	24·347	2·643	4		70. 33. 6·53		4	0·48	6·53	8·70
565	25 Herculis	1	16. 20. 56·980	1	0·50	56·980	2·134	2	2	52. 19. 12·82	13·07	4	0·50	12·95	8·40
566	η Ursæ Minoris....		16. 21. (10.)					1	1	13. 57. 27·02	26·96	2	0·42	26·99	8·12
567	Antares	1	16. 21. 44·710	1	0·57	44·710	3·668	5		116. 9. 6·48		5	0·33	6·48	8·36
568	Groombridge 2345..	1	16. 22. 8·040	2	0·27	8·075	0·785			28. 1.					
	Groomb. 2345 S.P..	1	8·110					1		5·87		1	0·07	5·87	8·31
569	η Draconis	1	16. 22. 17·990	1	0·55	17·990	0·807	3		28. 12. 8·81		3	0·66	8·81	8·28
570	λ Ophiuchi		16. 24. (36.)					1		87. 44. 26·38		1	0·44	26·38	8·16
571	β Herculis		16. 24. (50.)					3	3	68. 14. 11·82	12·24	6	0·45	12·03	8·08
572	B. F. 2270.....	1	16. 25. 54·540	1	0·51	54·540	2·818	2		78. 18. 18·23		2	0·51	18·23	8·00
573	τ Scorpii	1	16. 28. 6·160	1	0·39	6·160	+ 3·725	1		117. 57. 14·08		1	0·39	14·08	7·85
574	A Draconis		....					1	1	20. 57. 41·72	41·98	3	0·34	41·52	7·78
	A Draconis S.P. ...	1	16. 28. 14·050	1	0·08	14·050	− 0·137	1		40·52					
575	Piazzi XVI. 140...		16. 30. (40.)						1	28. 54.	52·10	1	0·42	52·10	7·58
576	Piazzi XVI. 182 ...	1	16. 32. 44·050	1	0·55	44·050	− 3·474	3		10. 46. 16·82		3	0·50	16·82	7·45
577	Groombridge 2370 .		16. 35. (39.)					6	6	26. 40. 32·15	32·89	12	0·47	32·52	7·21
578	ζ Herculis	1	16. 36. 34·380	1	0·68	34·380	+ 2·263			58. 10.					
579	Piazzi XVI. 159...	1	16. 37. 11·290	1	0·39	11·290	3·739	1		118. 16. 27·80		1	0·39	27·80	7·09
580	g Draconis		16. 40. (3.)					3	3	25. 10. 26·60	26·03	6	0·45	26·32	6·88
581	Lacaille 7015	1	16. 43. 43·950	1	0·44	43·950	3·651	1		114. 37. 1·09		1	0·44	1·09	6·55
582	50 Herculis		16. 45. (46.)					2	2	59. 58. 44·00	43·63	4	0·55	43·82	6·40
583	22 Ophiuchi	1	16. 47. 17·560	1	0·56	17·560	+ 3·621	2		113. 18. 16·74		2	0·56	16·74	6·31
584	53 Herculis		16. 48. (13.)					2	2	58. 5. 24·68	24·13	4	0·46	24·41	6·26
585	Groombridge 2391 .	1	16. 48. 41·290	2	0·74	41·330	− 2·782	3	3	12. 16. 19·45	19·08	7	0·55	19·16	6·14
	Groomb. 2391 S.P..	1	41·370					1		18·50					
586	54 Herculis	3	16. 49. 52·580	3	0·51	52·580	+ 2·630	5		71. 21. 55·54		5	0·53	55·54	6·01
587	κ Ophiuchi	2	16. 51. 45·050	2	0·49	45·050	2·834	2		80. 25. 44·46		2	0·56	44·46	5·86
588	57 Herculis		16. 52. (23.)					1	1	64. 27. 10·05	10·98	2	0·42	10·52	5·82
589	h^1 Draconis		16. 55. (20.)					2	2	24. 40. 26·89	27·46	4	0·46	27·18	5·56
590	ϵ Herculis	3	16. 55. 30·340	3	0·55	30·340	2·292	4	2	58. 53. 18·23	18·65	6	0·52	18·37	5·53
591	d Herculis	1	16. 56. 59·560	1	0·56	59·560	2·206	2		56. 14. 58·60		2	0·56	58·60	5·41
592	31 Ophiuchi	1	16. 57. 2·040	1	0·41	2·040	3·693	1		115. 27. 53·93		1	0·41	53·93	5·63
593	32 Ophiuchi	3	16. 57. 24·277	3	0·42	24·277	+ 2·745	3		75. 43. 35·29		3	0·42	35·29	5·44
594	Groombridge 2411 .	1	16. 58. 46·230	2	0·27	46·260	− 1·236	2		16. 41. 2·76		3	0·22	2·63	5·29
	Groomb. 2411 S.P..	1	46·290					1		2·25					
595	c Herculis	2	16. 59. 1·010	2	0·58	1·010	+ 2·164	4		54. 24. 28·89		4	0·58	28·89	5·33
596	Bradley 2172.....	2	17. 2. 7·785	2	0·56	7·785	2·149	4		54. 30. 32·31		4	0·56	32·31	4·94
597	μ^1 Draconis (S. Star)	1	17. 2. 44·790	1	0·41	44·790	1·236	1		35. 21. 54·31		1	0·41	54·31	4·90
598	μ^1 Draconis (N. Star)	1	17. 2. 44·790	1	0·41	44·790	1·236	1		35. 21. 50·75		1	0·41	50·75	4·90
599	η Ophiuchi		17. 3. (12.)					2		105. 34. 4·02		2	0·56	4·02	4·80
600	Piazzi XVII. 3	1	17. 3. 36·240	1	0·48	36·240	+ 2·124	2		53. 54. 4·44		2	0·48	4·44	+ 4·89

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			h m s			s	s			° ′ ″	″			″	″
601	Groombridge 2427 .	1	17. 5. 36·790	1	0·50	36·790	− 1·941	2		14. 31. 50·04		2	0·50	50·04	+ 4·71
602	63 Herculis	2	17. 5. 52·495	2	0·58	52·495	+ 2·509	4		65. 36. 28·74		4	0·58	28·74	4·61
603	Piazzi XVII. 15 ...	1	17. 6. 6·300	1	0·57	6·300	2·482	2		65. 35. 38·87		2	0·57	38·87	4·67
604	A Ophiuchi	1	17. 7. 39·980	1	0·46	39·980	3·682	3		116. 24. 59·03		3	0·41	59·03	5·66
605	ζ Draconis		17. 8. (25.)					1	1	24. 7. 53·50	54·09	2	0·42	53·80	4·40
606	α^1 Herculis.....	3	17. 8. 56·897	3	0·49	56·897	2·731	4		75. 27. 54·46		4	0·52	54·46	4·39
607	Piazzi XVII. 61 S.P.		17. 11. (28.)					1		26. 58. 57·70		1	0·98	57·70	4·24
608	θ Ophiuchi	1	17. 14. 19·990	1	0·42	19·990	3·677	2		114. 52. 19·45		2	0·62	19·45	3·95
609	Groombridge 2432 .	2	17. 14. 33·665	2	0·42	33·665	0·722	2		29. 9. 7·00		2	0·42	7·00	3·95
610	Groombridge 2433 .	3	17. 14. 58·530	3	0·42	58·530	0·726	3		29. 11. 47·18		3	0·42	47·18	3·91
611	43 Ophiuchi.....	7	17. 15. 29·597	7	0·55	29·597	3·770	15		118. 1. 7·41		15	0·54	7·41	3·90
612	σ Ophiuchi.....	3	17. 20. 18·760	3	0·46	18·760	2·975	4		85. 44. 57·00		4	0·48	57·00	3·44
613	Piazzi XVII. 117 ..	1	17. 23. 58·730	1	0·39	58·730	3·720	1		116. 10. 16·28		1	0·39	16·28	3·24
614	78 Herculis	1	17. 26. 54·830	1	0·39	54·830	2·357	1		61. 30. 0·35		1	0·39	0·35	2·83
615	β Draconis.....	3	17. 27. 36·520	3	0·31	36·520	1·351	4		37. 36. 18·28		4	0·36	18·28	2·82
616	α Ophiuchi.....	5	17. 29. 7·892	5	0·35	7·892	+ 2·779	9		77. 20. 50·34		9	0·40	50·34	2·89
617	Piazzi XVII. 176 ..		17. 31. (51.)					1	1	59. 8. 12·06	11·94	2	0·42	12·00	2·45
618	*f* Draconis S.P.	1	17. 32. 28·240	1	0·95	28·240	− 0·256	1		21. 47. 6·40		1	0·95	6·40	2·29
619	Piazzi XVII. 196 ..	1	17. 35. 14·290	1	0·44	14·290	+ 2·267	1		58. 43. 47·59		1	0·44	47·59	2·17
620	Piazzi XVII. 203 ..	3	17. 36. 22·023	3	0·42	22·023	2·695	3		73. 59. 17·40		3	0·42	17·40	1·99
621	β Ophiuchi.....	3	17. 37. 17·807	3	0·45	17·807	+ 2·959	2		85. 22. 41·93		2	0·61	41·93	1·81
622	Oeltz. Arg. 17419 ..	1	17. 37. 17·950	1	0·41	17·950	− 0·297	1		21. 32. 58·71		1	0·41	58·71	1·95
623	83 Herculis		17. 37. (20.)					1		65. 22. 19·03		1	0·42	19·03	1·93
624	ω Draconis S.P.	1	17. 37. 41·430	1	0·95	41·430	− 0·358	1		21. 11. 2·76		1	0·95	2·76	1·64
625	3 Sagittarii	13	17. 39. 41·585	13	0·51	41·585	+ 3·764	24		117. 46. 48·83		24	0·52	48·83	1·79
626	μ Herculis	3	17. 41. 34·047	3	0·39	34·047	2·344	4		62. 12. 16·23		4	0·38	16·23	2·35
627	Piazzi XVII. 238 ..	2	17. 42. 32·020	2	0·44	32·020	3·753	3		117. 1. 5·09		3	0·44	5·09	1·56
628	Lacaille 7508.....	2	17. 48. 48·320	2	0·58	48·320	3·784	4		118. 2. 32·24		4	0·58	32·24	0·98
629	γ Draconis	2	17. 53. 42·245	4	0·21	42·238	1·392	3		38. 29. 44·19		5	0·32	44·31	0·59
630	γ Draconis S.P.	2	42·230					2		44·65					
631	9 Sagittarii	1	17. 56. 12·570	1	0·41	12·570	+ 3·672	1		114. 21. 35·53		1	0·41	35·53	0·35
632	ψ^2 Draconis S.P....	2	17. 57. 21·080	2	0·53	21·080	− 1·045	2		17. 59. 0·70		2	0·53	0·70	0·51
633	Piazzi XVII. 359 ..	1	18. 0. 10·010	1	0·48	10·010	+ 3·796	2		118. 28. 2·82		2	0·48	2·82	+ 0·09
634	Bradley 2272.....	2	18. 1. 4·000	2	0·49	4·000	3·130	3		87. 31. 55·22		3	0·53	55·22	− 0·06
635	72 Ophiuchi.....	11	18. 1. 25·395	11	0·69	25·395	2·842			80. 27.					
636	101 Herculis	1	18. 3. 29·470	1	0·58	29·470	2·584	2	2	69. 58. 21·69	22·35	4	0·58	22·02	0·27
637	μ^1 Sagittarii	1	18. 6. 17·260	1	0·71	17·260	3·584	1		111. 5. 19·25		1	0·71	19·25	0·54
638	A Herculis.....	1	18. 7. 12·020	1	0·74	12·020	2·262	1		58. 37. 28·45		1	0·74	28·45	0·72
639	Piazzi XVIII. 24...	4	18. 10. 13·768	4	0·44	13·768	+ 3·760	6		117. 5. 4·31		6	0·45	4·31	0·83
640	δ Ursæ Minoris	19	18. 12. 39·358	24	0·57	39·164	− 19·400	42	6	3. 23. 32·58	32·52	65	0·52	32·69	1·12
	δ Ursæ Minoris S.P.	5	38·428					17		33·02					
641	δ Sagittarii	2	18. 12. 59·405	2	0·54	59·405	+ 3·838	2		119. 52. 42·73		2	0·54	42·73	1·10
642	η Serpentis	1	18. 14. 50·490	1	0·75	50·490	+ 3·101			92. 55.					
643	37 Draconis.....	1	18. 16. 0·850	1	0·71	0·850	− 0·347	1		21. 17. 23·92		1	0·71	23·92	1·32
644	Bradley 2308.....	1	18. 16. 56·000	1	0·73	56·000	+ 2·500	1		66. 46. 36·47		1	0·73	36·47	1·54
645	109 Herculis	1	18. 18. 22·160	1	0·76	22·160	+ 2·558	1		68. 17. 8·05		1	0·76	8·05	1·37
646	Piazzi XVIII. 93...	1	18. 19. 56·100	1	0·50	56·100	− 0·122	4	2	22. 37. 32·79	32·35	6	0·54	32·64	1·74
647	μ Lyræ.....	2	18. 20. 6·740	2	0·68	6·740	+ 1·974	3		50. 33. 34·74		3	0·67	34·74	1·76
648	λ Sagittarii	5	18. 20. 15·332	5	0·49	15·332	+ 3·702	5		115. 29. 15·61		5	0·41	15·61	− 1·53

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			h m s			s	s			° ′ ″	″			″	″
649	φ Draconis		18. 22. (32.)					1	1	18. 43. 44·39	44·73	2	0·68	44·56	— 1·99
650	42 Draconis		18. 25. (37.)					4	4	24. 30. 49·97	49·26	8	0·58	49·62	2·18
651	Piazzi XVIII. 116		18. 27. (34.)					3	3	66. 28. 29·31	29·51	6	0·67	29·41	2·41
652	Piazzi XVIII. 132		18. 30. (18.)					2	2	66. 29. 39·13	37·25	4	0·59	38·19	2·68
653	α Lyræ	21	18. 32. 42·355	21	0·59	42·355	+ 2·030	21	8	51. 19. 53·07	53·66	29	0·59	53·23	3·13
654	2 Aquilæ	4	18. 35. 25·680	4	0·44	25·680	3·285			99. 10.					
655	Groombridge 2627	1	18. 35. 31·230	1	0·65	31·230	+ 1·931	1	1	49. 10. 42·28	43·09	2	0·65	42·69	3·10
656	Groombridge 2655	1	18. 35. 46·300	1	0·65	46·300	— 2·861	2		12. 33. 9·36		2	0·65	9·36	3·12
657	Piazzi XVIII. 155	1	18. 37. 8·420	1	0·40	8·420	+ 3·696	1		115. 7. 58·87		1	0·40	58·87	2·96
658	φ Sagittarii	2	18. 37. 50·690	2	0·40	50·690	3·752	2		117. 6. 58·75		2	0·40	58·75	3·31
659	111 Herculis		18. 41. (30.)					1	1	71. 57. 22·49	22·00	2	0·68	22·25	3·73
660	β^1 Lyræ	3	18. 45. 27·897	3	0·63	27·897	2·212	6	1	56. 46. 51·78	52·21	7	0·62	51·84	3·92
661	σ Sagittarii	1	18. 47. 30·650	1	0·69	30·650	3·723	1		116. 26. 56·93		1	0·69	56·93	4·05
662	113 Herculis		18. 49. (28.)					5	5	67. 30. 42·79	42·78	10	0·65	42·79	4·31
663	13 Lyræ	1	18. 51. 31·760	1	0·63	31·760	1·822	2		46. 13. 2·15		2	0·63	2·15	4·47
664	ε Aquilæ	3	18. 53. 56·883	3	0·51	56·883	2·718	6	4	75. 5. 58·92	60·44	10	0·62	59·53	4·58
665	γ Lyræ		18. 54. (16.)					2	2	57. 28. 50·57	50·97	4	0·75	50·77	4·70
666	Groombridge 2742							1	1	27. 46. 20·44	19·99	3	0·52	19·95	4·86
	Groomb. 2742 S.P.	1	18. 56. 1·700	1	0·09	1·700	0·609	1		19·17					
667	τ Sagittarii	1	18. 59. 7·790	1	0·69	7·790	3·747	1		117. 51. 0·94		1	0·69	0·94	4·86
668	ζ Aquilæ	3	18. 59. 39·887	3	0·62	39·887	+ 2·752	7	4	76. 19. 14·48	15·65	11	0·58	14·91	5·09
669	ι Lyræ		19. 2. (50.)					1	1	54. 5. 40·51	40·45	2	0·78	40·48	5·47
670	Bradley 2440		19. 3.					3	3	13. 7. 44·34	44·42	7	0·63	44·27	5·47
	Bradley 2440 S.P.	1	10·740	1	0·05	10·740	— 2·457	1		43·63					
671	19 Lyræ		19. 6. (58.)					3	2	58. 55. 26·36	26·60	5	0·58	26·40	5·84
672	ψ Sagittarii	3	19. 7. 52·487	3	0·58	52·487	+ 3·681	3		115. 28. 9·98		3	0·61	9·98	5·84
673	55 Draconis		19. 9. (17.)					3	3	24. 13. 49·77	49·53	6	0·71	49·65	5·96
674	1 Vulpeculæ		19. 10. (50.)					4	4	68. 49. 43·39	44·25	8	0·57	43·82	6·10
675	ω Aquilæ	3	19. 11. 56·860	3	0·56	56·860	+ 2·814	5		78. 37. 41·55		5	0·63	41·55	6·22
676	δ Draconis		19. 12. (31.)					8	8	22. 33. 30·19	29·91	16	0·66	30·05	6·31
677	59 Draconis S.P.	1	19. 13. 44·170	1	0·09	44·170	— 2·143	1		13. 38. 57·34		1	0·09	57·34	6·20
678	Piazzi XIX. 84	3	19. 16. 42·560	3	0·55	42·560	+ 3·751	6		118. 6. 17·18		6	0·55	17·18	6·60
679	τ Draconis		19. 17. (56.)					2	2	16. 52. 38·41	37·95	4	0·69	38·18	6·79
680	δ Aquilæ	1	19. 19. 11·720	1	0·14	11·720	3·023	1		87. 7. 58·79		1	0·14	58·79	6·90
681	π Draconis		19. 20. (1.)					4	4	24. 31. 34·15	32·56	8	0·64	33·36	6·89
682	Piazzi XIX. 126	2	19. 22. 8·105	2	0·51	8·105	3·710	3		117. 14. 18·89		3	0·54	18·89	6·90
683	α Vulpeculæ	2	19. 23. 30·240	2	0·62	30·240	2·494	1	1	65. 35. 13·70	13·34	2	0·66	13·52	7·06
684	β^1 Cygni		19. 25. (40.)					9	9	62. 18. 6·51	6·29	18	0·58	6·40	7·32
685	Bradley 2474		19. 25. (43.)						2	62. 17.	46·82	2	0·57	46·82	7·36
686	μ Aquilæ	2	19. 27. 58·945	2	0·60	58·945	2·931	2		82. 53. 4·64		2	0·64	4·64	7·37
687	h^2 Sagittarii	2	19. 29. 5·920	2	0·72	5·920	3·655	1		115. 9. 26·96		1	0·74	26·96	7·62
688	11 Cygni	4	19. 31. 18·835	4	0·59	18·835	2·158	6		53. 19. 54·44		6	0·57	54·44	7·82
689	σ Draconis		19. 32. (35.)					2	2	20. 33. 5·64	5·26	4	0·60	5·45	6·09
690	Groombridge 2899	1	19. 33. 26·540	1	0·58	26·540	0·648	2		26. 50. 36·68		2	0·58	36·68	7·95
691	φ Cygni		19. 34. (26.)					1	1	60. 8. 1·46	1·01	2	0·67	1·24	8·09
692	α Sagittæ		19. 34. (30.)					2	2	72. 16. 19·07	18·45	4	0·74	18·76	8·07
693	γ Aquilæ	4	19. 40. 18·963	4	0·60	18·963	2·853	3		79. 41. 23·63		3	0·78	23·63	8·50
694	Groombridge 2952		19. 44. (28.)					2	2	20. 58. 7·05	6·32	4	0·48	6·69	8·83
695	α Aquilæ	4	19. 44. 41·025	4	0·50	41·025	+ 2·928	4		81. 27. 36·42		4	0·06	36·42	— 9·23

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			h m s			s	s			° ′ ″	″			″	″
696	12 Vulpeculæ.....	1	19. 45. 41·040	1	0·65	41·040	+ 2·586	1		67. 42. 22·80		1	0·65	22·80	— 8·97
697	ω Sagittarii	3	19. 48. 10·830	3	0·59	10·830	+ 3·683	4		116. 37. 42·93		4	0·60	42·93	9·20
698	β Aquilæ		19. 49. (10.)					2		83. 54. 14·50		2	0·55	14·50	8·73
	λ Ursæ Minoris ...	13	19. 49. 16·526					46	12	1. 4. 8·19	8·49				
699	λ Ursæ Minoris S.P.	3	14·193	16	0·63	16·089	−60·787	7	2	8·29	8·83	67	0·55	8·27	9·19
700	14 Vulpeculæ	1	19. 53. 48·700	1	0·66	48·700	+ 2·572	1		67. 14. 15·68		1	0·66	15·68	9·56
701	c Sagittarii	3	19. 54. 58·183	3	0·52	58·183	3·698			118. 3.					
702	15 Vulpeculæ		19. 55. (57.)					2	2	62. 35. 26·08	25·17	4	0·64	25·63	9·77
703	b^2 Cygni	1	20. 4. 47·050	1	0·67	47·050	2·226	1		53. 31. 37·85		1	0·67	37·85	10·45
704	θ Aquilæ	4	20. 4. 51·185	4	0·64	51·185	3·097	4		91. 11. 26·12		4	0·56	26·12	10·39
705	Piazzi XX. 29.....	1	20. 7. 29·420	1	0·47	29·420	3·754			117. 24.					
706	ρ Aquilæ.....	1	20. 8. 29·550	1	0·63	29·550	2·774	2		75. 10. 54·34		2	0·63	54·34	10·73
707	21 Vulpeculæ.....	1	20. 9. 6·300	1	0·67	6·300	2·467	1		61. 40. 57·91		1	0·67	57·91	10·63
708	68 Draconis.....		20. 9. (32.)					2	2	28. 17. 58·70	59·40	4	0·59	59·05	10·79
709	o^2 Cygni.....	1	20. 9. 41·590	1	0·65	41·590	1·890	1		43. 38. 12·49		1	0·65	12·49	10·79
710	23 Vulpeculæ		20. 10. (35.)					5	5	62. 34. 4·86	5·37	10	0·64	5·12	10·83
711	α^2 Capricorni.....	2	20. 11. 7·115	2	0·73	7·115	3·331			102. 55.					
712	β Capricorni	3	20. 13. 59·183	3	0·67	59·183	3·374			105. 10.					
713	Groombridge 3140.	4	20. 15. 43·365	4	0·65	43·365	2·173	5		50. 59. 24·24		5	0·64	24·24	11·19
714	γ^1 Cygni.....		20. 17 (44.)					1	1	50. 8. 33·01	34·43	2	0·71	33·72	11·36
715	Lacaille 8433.....	1	20. 17. 47·450	1	0·67	47·450	3·685	1		119. 3. 57·07		1	0·67	57·07	11·34
716	ρ Capricorni.....	1	20. 21. 43·730	1	0·58	43·730	3·425			108. 13.					
717	Lalande 39408.....		20. 21. (52.)					2	2	60. 2. 25·60	25·24	4	0·57	25·42	11·64
718	Piazzi XX. 146....	2	20. 22. 11·145	2	0·70	11·145	3·529	3		112. 48. 14·08		3	0·68	14·08	11·62
719	41 Cygni	1	20. 24. 17·440	1	0·64	17·440	2·449	4		60. 2. 50·84		4	0·61	50·84	11·82
720	Piazzi XX. 170....	2	20. 25. 25·655	2	0·62	25·655	3·572	1		115. 21. 51·53		1	0·77	51·53	11·77
721	ε Delphini	2	20. 27. 14·420	2	0·63	14·420	2·866	1		79. 7. 12·00		1	0·67	12·00	11·99
	θ Cephei.....		20. 27.					1	1	27. 25. 33·05	31·50				
722	θ Cephei S.P.	2	29·075	2	0·23	29·075	1·015	2		31·89		4	0·51	32·12	11·98
723	47 Cygni	3	20. 29. 2·450	3	0·62	2·450	+ 2·335	5		55. 10. 33·97		5	0·61	33·97	12·09
724	27 Vulpeculæ		20. 31. (44.)					4	4	63. 58. 19·04	19·40	8	0·68	19·22	12·32
725	Bradley 2701.....	3	20. 34. 38·030	3	0·65	38·030	— 3·505	8		8. 59. 31·85		8	0·62	31·85	12·59
726	75 Draconis.....	2	20. 35. 59·815	2	0·60	59·815	— 3·477	6		9. 0. 23·70		6	0·60	23·70	12·62
727	α Cygni	3	20. 37. 10·180	3	0·70	10·180	+ 2·042	4		45. 9. 54·92		4	0·69	54·92	12·70
728	δ Delphini	2	20. 37. 37·350	2	0·69	37·350	2·800	4	1	75. 22. 19·91	21·50	5	0·72	20·23	12·68
729	Piazzi XX. 298....	2	20. 41. 3·915	2	0·62	3·915	3·510	4		113. 11. 32·57		4	0·64	32·57	12·78
730	ε Cygni.....		20. 41. (9.)					3	3	56. 29. 48·87	49·94	6	0·61	49·40	13·29
731	14 Delphini.....	1	20. 43. 40·540	1	0·57	40·540	2·947			82. 35.					
732	55 Cygni	2	20. 44. 40·635	2	0·69	40·635	2·046	3		44. 20. 54·40		3	0·66	54·40	13·21
733	31 Vulpeculæ	3	20. 46. 46·650	3	0·66	46·650	2·565	5	1	63. 22. 11·29	11·59	6	0·67	11·34	13·27
734	32 Vulpeculæ	3	20. 49. 13·970	3	0·68	13·970	+ 2·554	2	1	62. 24. 60·71	59·45	3	0·81	60·29	13·50
735	76 Draconis	1	20. 51. 30·690	1	0·67	30·690	— 3·959	1		7. 55. 59·48		1	0·67	59·48	13·62
736	33 Vulpeculæ		20. 52. (41.)					1	1	68. 9. 25·37	24·70	2	0·69	25·04	13·80
737	Bradley 2749		20. 53. (11.)					2	2	9. 55. 3·43	3·50	4	0·72	3·47	13·75
738	f^1 Cygni	1	20. 55. 34·520	1	0·61	34·520	+ 2·033	2		42. 57. 58·79		2	0·61	58·79	13·89
739	Bradley 2738.....	2	20. 56. 20·375	2	0·73	20·375	1·477	2		31. 2. 57·65		2	0·73	57·65	13·90
740	η Capricorni.....	1	20. 57. 17·320	1	0·62	17·320	3·421	2		110. 20. 51·51		2	0·62	51·51	13·96
741	Piazzi XX. 452....		20. 57. (33.)					3	3	50. 58. 58·72	59·15	6	0·71	58·94	13·99
742	θ Capricorni.....	2	20. 58. 55·060	2	0·69	55·060	+ 3·380	1		107. 43. 39·38		1	0·67	39·38	14·06
743	Piazzi XXI. 1.....		21. 3. (20.)					1	1	60. 17. 54·94	55·19	2	0·78	55·07	— 14·39

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			h m s			s	s			° ′ ″	″			″	″
744	Groombridge 3409 .	1	21. 5. 37·910	1	0·67	37·910	+ 0·405	4	3	19. 4. 10·07	9·11	7	0·79	9·66	— 14·53
745	ζ Cygni	1	21. 7. 36·990	1	0·88	36·990	2·548	1	1	60. 17. 5·65	6·65	2	0·69	6·15	14·58
746	77 Draconis		21. 7. (57.)					5	5	12. 22. 52·52	51·68	10	0·71	52·10	14·69
747	ι Capricorni	1	21. 15. 17·000	1	0·88	17·000	3·348	1		107. 21. 54·70		1	0·88	54·70	15·11
748	α Cephei	2	21. 15. 35·555	4	0·45	35·608	1·436	4	1	27. 56. 36·42	37·60	7	0·59	36·54	15·12
	α Cephei S.P.	2	35·660					2		36·13					
749	1 Pegasi	3	21. 16. 18·277	3	0·68	18·277	2·778	4		70. 43. 45·00		4	0·66	45·00	15·24
750	6 Cephei	2	21. 16. 46·370	2	0·80	46·370	1·253	1		25. 39. 27·20		1	0·74	27·20	15·17
751	Piazzi XXI. 142 ...	1	21. 19. 48·040	1	0·62	48·040	1·339	3	1	26. 18. 36·64	34·74	4	0·70	36·17	15·48
752	35 Vulpeculæ	2	21. 22. 9·530	2	0·85	9·530	2·650	1		62. 56. 3·91		1	0·84	3·91	15·55
753	2 Pegasi		21. 24. (17.)					2	2	66. 54. 29·75	29·35	4	0·62	29·55	15·62
754	β Aquarii	9	21. 24. 58·604	9	0·75	58·604	3·161			96. 7.					
755	7 Cephei	1	21. 25. 20·940	1	0·71	20·940	1·170	1		23. 44. 9·83		1	0·71	9·83	15·62
756	β^2 Cephei	1	21. 27. 2·160	2	0·41	2·405	0·797	2	2	19. 59. 16·59	15·89	5	0·58	16·37	15·71
	β^2 Cephei S.P.....	1	2·650					1		17·18					
757	Bradley 2804.....	1	21. 28. 21·140	1	0·57	21·140	+ 3·054	2		88. 43. 31·42		2	0·57	31·42	15·88
758	Groomb. 3511 S.P..	1	21. 28. 25·850	1	0·29	25·850	— 1·526	1		10. 1. 14·82		1	0·29	14·82	15·93
759	Groomb. 3503 S.P..	2	21. 29. 22·385	2	0·24	22·385	+ 0·794	2		19. 43. 45·12		2	0·24	45·12	15·88
760	ξ Aquarii	2	21. 31. 5·755	2	0·62	5·755	3·196			98. 24.					
761	γ Capricorni	2	21. 33. 9·765	2	0·62	9·765	3·333	4		107. 13. 31·60		4	0·62	31·60	16·05
762	9 Cephei	1	21. 34. 33·770	1	0·59	33·770	1·612	2		28. 28. 52·06		2	0·59	52·06	16·15
763	75 Cygni (2nd Star)	1	21. 35. 16·840	1	0·61	16·840	2·351	2		47. 17. 33·88		2	0·61	33·88	16·22
764	Bradley 2854 S.P...	1	21. 37. 25·150	1	0·20	25·150	0·863	1		19. 15. 17·04		1	0·20	17·04	16·36
765	Bradley 2829.....		21. 37. (26.)					2		106. 32. 28·48		2	0·57	28·48	16·34
766	ε Pegasi	4	21. 38. 2·740	4	0·73	2·740	2·948			80. 41.					
767	κ Pegasi	1	21. 38. 59·130	1	0·79	59·130	2·714	1		64. 55. 41·82		1	0·79	41·82	16·41
768	11 Cephei	1	21. 40. 4·900	2	0·50	4·885	0·908	1		19. 15. 50·22		2	0·54	49·97	16·52
	11 Cephei S.P.	1	4·870					1		49·58					
769	δ Capricorni	2	21. 40. 8·415	2	0·75	8·415	3·317			106. 41.					
770	78 Draconis	2	21. 41. 32·190	3	0·57	32·147	0·754	2		18. 15. 9·63		3	0·54	9·20	16·46
	78 Draconis S.P....	1	32·060					1		7·92					
771	13 Pegasi		21. 44. (11.)					1	1	73. 17. 40·78	39·89	2	0·79	40·34	16·63
772	Groombridge 3590 .	2	21. 44. 48·510	2	0·72	48·510	1·092	3	2	20. 25. 42·37	43·18	5	0·77	42·69	16·68
773	Groombridge 3588 .	2	21. 45. 6·255	3	0·56	6·273	1·510	2		25. 24. 39·63		3	0·61	39·63	16·68
	Groomb. 3588 S.P..	1	6·310					1		39·65					
774	Groombridge 3594 .	1	21. 46. 35·510	1	0·73	35·510	1·520	1		25. 21. 1·61		1	0·73	1·61	16·75
775	16 Pegasi	2	21. 47. 22·495	2	0·89	22·495	2·727			64. 39.					
776	Groombridge 3598 .	1	21. 47. 46·600	1	0·68	46·600	2·022	1		34. 47. 43·74		1	0·68	43·74	16·81
777	Bradley 2866.....	1	21. 47. 47·200	1	0·68	47·200	2·022	1		34. 47. 24·59		1	0·68	24·59	16·75
778	79 Draconis							2	2	16. 53. 20·62	20·32	5	0·65	20·34	16·97
	79 Draconis S.P....	1	21. 51. 18·670	1	0·17	18·670	0·737	1		19·53					
779	Piazzi XXI. 360 ...	2	21. 53. 7·615	4	0·48	7·585	1·703	3		26. 58. 9·12		4	0·59	9·28	17·04
	Piazzi XXI. 360 S.P.	2	7·555					1		10·00					
780	η Piscis Australis ..	1	21. 53. 39·110	1	0·68	39·110	+ 3·460	1		119. 3. 6·86		1	0·68	6·86	17·09
781	Groombridge 3667 .	2	21. 56. 12·700	3	0·51	12·780	— 0·719	2		10. 17. 12·66		3	0·51	12·29	17·20
	Groomb. 3667 S.P..	1	12·940					1		11·56					
782	Bradley 2897.....	3	21. 56. 38·450	3	0·75	38·450	+ 0·618	3		15. 36. 5·71		3	0·75	5·71	17·14
783	16 Cephei	2	21. 57. 27·265	2	0·78	27·265	0·877	2	2	17. 24. 53·76	54·36	4	0·78	54·06	17·07
784	α Aquarii	1	21. 59. 21·750	1	0·68	21·750	3·080			90. 55.					
785	ι Aquarii	1	21. 59. 40·990	1	0·78	40·990	+ 3·244	1		104. 28. 28·10		1	0·78	28·10	— 17·28

No.	Star's Name.	Number of Obs. of R.A.	Mean R.A. 1875, Jan. 1.	Whole Number of Obs. of R.A.	Fraction of Year for Mean of Obs.	Concluded Seconds of R.A.	Annual Variation in R.A.	Number of Obs. of N.P.D. D.	Number of Obs. of N.P.D. R.	Mean N.P.D. 1875, Jan. 1. D.	Mean N.P.D. 1875, Jan. 1. R.	Whole Number of Obs. of N.P.D.	Fraction of Year for Mean of Obs.	Concluded Seconds of N.P.D.	Annual Variation in N.P.D.
			h m s			s	s			° ′ ″	″			″	″
786	18 Cephei	1	22. 0. 8·180	2	0·44	8·200	+ 1·783	1		27. 29. 16·84		2	0·49	17·05	— 17·38
	18 Cephei S.P.	1	8·220					1		17·37					
787	ι Pegasi		22. 1. (11.)					1	1	65. 15. 52·26	53·94	2	0·86	53·10	17·47
788	20 Cephei	1	22. 1. 12·400	1	0·65	12·400	1·815	2		27. 49. 25·52		2	0·65	25·52	17·46
789	24 Cephei S.P.	1	22. 7. 24·180	1	0·31	24·180	1·166	1		18. 16. 28·52		1	0·31	28·52	17·65
790	Groombridge 3719	2	22. 7. 47·515	2	0·68	47·515	1·389	1		20. 29. 4·19		1	0·75	4·19	17·70
791	Bradley 2934	2	22. 7. 47·800	2	0·75	47·800	1·218	2	2	18. 30. 15·04	15·67	4	0·75	15·36	17·69
792	Piazzi XXII. 42	2	22. 8. 28·825	2	0·74	28·825	1·857	2		27. 19. 34·80		2	0·74	34·80	17·77
793	42 Aquarii	2	22. 10. 6·365	2	0·70	6·365	3·215	2		103. 27. 12·74		2	0·70	12·74	17·79
794	θ Aquarii	2	22. 10. 14·175	2	0·83	14·175	3·169			98. 24.					
795	1 Lacertæ		22. 10. (31.)					2	2	52. 52. 23·41	22·70	4	0·65	23·06	17·81
796	45 Aquarii	2	22. 12. 18·110	2	0·78	18·110	3·226	3		103. 55. 47·29		3	0·72	47·29	17·88
797	γ Aquarii	3	22. 15. 11·933	3	0·83	11·933	3·101	1		92. 0. 59·50		1	0·69	59·50	18·01
798	31 Pegasi		22. 15. (22.)					3	3	78. 25. 25·89	25·39	6	0·78	25·64	17·99
799	Groomb. 3756 S.P.	2	22. 16. 49·180	2	0·25	49·180	0·762	2		14. 8. 22·01		2	0·25	22·01	18·06
800	33 Pegasi	2	22. 17. 38·730	2	0·71	38·730	2·887	2		69. 46. 57·29		2	0·71	57·29	18·07
801	50 Aquarii	1	22. 17. 45·260	1	0·62	45·260	3·220	2		104. 9. 43·71		2	0·62	43·71	18·12
802	Groombridge 3760		22. 18. (2.)					1	1	23. 55. 29·67	27·71	2	0·78	28·69	18·10
803	Piazzi XXII. 115	1	22. 21. 36·060	2	0·64	35·910	1·995	1		27. 18. 26·08		2	0·70	25·79	18·28
	PiazziXXII.115S.P.	1	35·760					1		25·35					
804	σ Aquarii	2	22. 24. 1·840	2	0·72	1·840	3·177	3		101. 18. 59·66		3	0·80	59·66	18·37
805	38 Pegasi	2	22. 24. 18·840	2	0·72	18·840	2·742	1		58. 3. 59·50		1	0·75	59·50	18·44
806	α Lacertæ	1	22. 26. 8·620	2	0·52	8·665	2·461	1		40. 21. 34·93		2	0·59	34·77	18·40
	α Lacertæ S.P.	1	8·710					1		34·44					
807	39 Pegasi		22. 26. (33.)					1	1	70. 24. 50·18	48·44	2	0·71	49·31	18·43
808	Groombridge 3804	1	22. 26. 54·930	1	0·86	54·930	2·642			50. 51.					
809	η Aquarii	3	22. 28. 55·957	3	0·82	55·957	3·082	2		90. 45. 39·56		2	0·78	39·56	18·43
810	Groombridge 3823	1	22. 29. 24·120	1	0·68	24·120	2·137	1		28. 52. 2·85		1	0·68	2·85	18·51
811	10 Lacertæ	1	22. 33. 39·190	1	0·69	39·190	2·681	1		51. 35. 58·28		1	0·69	58·28	18·67
812	30 Cephei	1	22. 34. 13·090	1	0·82	13·090	2·116	1		27. 3. 53·74		1	0·82	53·74	18·64
813	Piazzi XXII. 186	1	22. 34. 41·090	1	0·98	41·090	2·952	1		76. 6. 26·00		1	0·98	26·00	18·68
814	ζ Pegasi	1	22. 35. 13·710	1	0·90	13·710	2·986			79. 49.					
815	Piazzi XXII. 195	3	22. 35. 47·107	3	0·97	47·107	2·948	3		76. 8. 8·11		3	0·97	8·11	18·71
816	ο Pegasi		22. 35. (53.)					1		61. 20. 38·09		1	0·69	38·09	18·69
817	12 Lacertæ	2	22. 35. 53·030	2	0·70	53·030	2·676	3		50. 25. 36·53		3	0·67	36·53	18·71
818	67 Aquarii	2	22. 36. 42·500	2	0·74	42·500	3·133	2		97. 36. 59·44		2	0·74	59·44	18·76
819	ξ Pegasi	2	22. 40. 26·835	2	0·78	26·835	2·992	2		78. 28. 3·69		2	0·78	3·69	18·37
820	μ Pegasi	4	22. 43. 58·250	4	0·81	58·250	2·888	1	1	66. 3. 28·45	28·91	2	0·97	28·68	18·92
821	ι Cephei	1	22. 45. 13·990	1	0·82	13·990	2·118	1		24. 27. 22·76		1	0·82	22·76	18·86
822	λ Aquarii		22. 46. (5.)					7		98. 14. 37·94		7	0·55	37·94	19·08
823	Piazzi XXII. 241	2	22. 46. 53·145	2	0·73	53·145	2·949	2		73. 49. 17·93		2	0·73	17·93	19·03
824	Piazzi XXII. 250	2	22. 48. 41·950	2	0·81	41·950	3·119	2		95. 39. 10·33		2	0·81	10·33	19·07
825	Fomalhaut	1	22. 50. 44·400	1	0·68	44·400	3·327			120. 17.					
826	51 Pegasi	1	22. 51. 19·470	1	0·74	19·470	+ 2·947	2	1	69. 54. 2·66	3·69	3	0·70	3·00	19·23
827	Bradley 3058	1	22. 55. 18·750	1	0·82	18·750	— 0·219			6. 19.					
828	β Pegasi	1	22. 57. 43·130	1	0·14	43·130	+ 2·900	1		62. 35. 42·14		1	0·14	42·14	19·47
829	α Pegasi	1	22. 58. 32·030	1	0·96	32·030	2·984			75. 28.					
830	h^1 Aquarii	3	22. 58. 38·547	3	0·73	38·547	+ 3·131	4		98. 22. 3·36		4	0·70	3·36	19·36
831	π Cephei		23. 3. (55.)					1	1	15. 17. 17·08	16·64	2	0·67	16·86	19·41
832	60 Pegasi		23. 5. (45.)					1	1	63. 49. 39·29	37·84	2	0·97	38·57	— 19·42

No.	Star's Name.	Number of Obs. of R.A.	Mean R.A. 1875, Jan. 1.	Whole Number of Obs. of R.A.	Fraction of Year for Mean of Obs.	Concluded Seconds of R.A.	Annual Variation in R.A.	Number of Obs. of N.P.D. D.	Number of Obs. of N.P.D. R.	Mean N.P.D. 1875, Jan. 1. D.	Mean N.P.D. 1875, Jan. 1. R.	Whole Number of Obs. of N.P.D.	Fraction of Year for Mean of Obs.	Concluded Seconds of N.P.D.	Annual Variation in N.P.D.
			h m s			s	s			° ′ ″	″				″
833	B. F. 3183.....	3	23. 9. 7·860	3	0·73	7·860	+ 3·094	3		94. 10. 37·73		3	0·73	37·73	— 19·56
834	61 Pegasi.....		23. 9. (40.)					1	1	62. 25. 60·11	59·92	2	0·69	60·02	19·62
835	Bradley 3085.....	1	23. 10. 10·640	2	0·55	10·725	2·094	1	1	16. 26. 60·14	61·25	3	0·66	59·82	19·59
	Bradley 3085 S.P...	1	10·810					1		57·20					
836	χ Aquarii.....	1	23. 10. 22·060	1	0·63	22·060	3·110	2		98. 24. 26·17		2	0·63	26·17	19·57
837	γ Piscium.....	4	23. 10. 41·128	4	0·82	41·128	3·106			87. 24.					
838	96 Aquarii.....	1	23. 12. 54·990	1	0·93	54·990	3·111	1		95. 48. 22·94		1	0·93	22·94	19·62
839	Groombridge 4040..	2	23. 13. 21·945	2	0·80	21·945	2·188	2		16. 59. 37·52		2	0·80	37·52	19·64
840	ο Cephei.....	1	23. 13. 29·940	1	0·74	29·940	2·443	2	1	22. 34. 20·49	20·49	3	0·72	20·49	19·66
841	Bradley 3100.....	1	23. 15. 17·100	1	0·76	17·100	2·870	1		52. 6. 6·56		1	0·76	6·56	19·71
842	υ Pegasi.....	2	23. 19. 8·495	2	0·82	8·495	2·986	1		67. 17. 0·64		1	0·84	0·64	19·77
843	4 Cassiopeiæ.....	1	23. 19. 17·440	1	0·85	17·440	2·639	1		28. 24. 10·81		1	0·88	10·81	19·73
844	κ Piscium.....	3	23. 20. 31·397	3	0·77	31·397	3·075	2		89. 25. 43·02		2	0·55	43·02	19·64
845	Bradley 3121.....	1	23. 21. 1·150	1	0·74	1·150	2·450	1		20. 0. 9·14		1	0·74	9·14	19·72
846	Bradley 3125.....		23. 22. (0.)					1	1	20. 19. 40·35	40·67	2	0·69	40·51	19·78
847	Piazzi XXIII. 96 ..	5	23. 23. 4·310	5	0·81	4·310	3·095	5		95. 12. 45·86		5	0·81	45·86	19·45
848	15 Andromedæ	1	23. 28. 30·820	1	0·79	30·820	2·919			50. 27.					
849	Bradley 3140		23. 29. (34.)					1		19. 2. 55·43		1	0·81	55·43	19·89
850	75 Pegasi.....	1	23. 31. 38·130	1	0·85	38·130	3·027			72. 17.					
851	ι Andromedæ	1	23. 32. 0·590	1	0·67	0·590	2·921	1		47. 25. 24·78		1	0·67	24·78	19·93
852	ι Piscium	3	23. 33. 31·237	3	0·68	31·237	3·084			85. 3.					
853	γ Cephei.....	3	23. 34. 13·823	8	0·37	13·857	2·406	4	1	13. 3. 54·65	54·13	10	0·46	54·55	20·08
	γ Cephei S.P.	5	13·878					5		54·55					
854	76 Pegasi.....		23. 36. (23.)					1	1	74. 21. 28·97	28·93	2	0·84	28·95	19·96
855	78 Pegasi.....		23. 37. (42.)					1	1	61. 19. 50·57	50·07	2	0·81	50·32	19·92
856	20 Piscium.....	3	23. 41. 30·970	3	0·78	30·970	3·081	2		93. 27. 21·53		2	0·74	21·53	19·98
857	Bradley 3166 S.P. .	1	23. 41. 56·770	1	0·26	56·770	2·829	1		22. 53. 12·94		1	0·26	12·94	19·98
858	δ Sculptoris	1	23. 42. 24·650	1	0·68	24·650	3·138			118. 49.					
859	Piazzi XXIII. 193 .	3	23. 42. 25·380	3	0·74	25·380	3·059	3		88. 28. 43·60		3	0·74	43·60	19·98
860	6 Cassiopeiæ	1	23. 42. 45·330	1	0·84	45·330	2·885	1		28. 28. 47·71		1	0·84	47·71	20·01
861	φ Pegasi.....		23. 46. (7.)					1	1	71. 34. 25·73	24·90	2	0·81	25·32	20·03
862	Groombridge 4154 .	2	23. 46. 20·070	2	0·77	20·070	2·778	2	1	15. 9. 9·28	8·92	3	0·76	9·16	20·02
863	Piazzi XXIII. 227 .	1	23. 48. 22·740	1	0·84	22·740	3·059	1		90. 35. 7·65		1	0·84	7·65	19·97
864	ψ Pegasi.....	1	23. 51. 23·480	1	0·67	23·480	3·051	1		65. 33. 11·09		1	0·67	11·09	20·03
865	ω Piscium.....		23. 52. (53.)					1		83. 49. 46·30		1	0·93	46·30	19·91
866	Bradley 3195.....		23. 55. ...					2	2	29. 28. 23·07	22·70	6	0·62	22·76	20·02
	Bradley 3195 S.P...	2	14·905	2	0·22	14·905	3·023	2		22·38					
867	2 Ceti.....	1	23. 57. 20·130	1	0·69	20·130	3·076	1		108. 1. 53·49		1	0·69	53·49	20·05
868	10 Cassiopeiæ	2	23. 59. 57·835	3	0·63	57·700	+ 3·074	2	1	26. 29. 59·56	59·75	4	0·72	59·42	— 20·06
	10 Cassiopeiæ S.P. .	1	57·430					1		58·51					

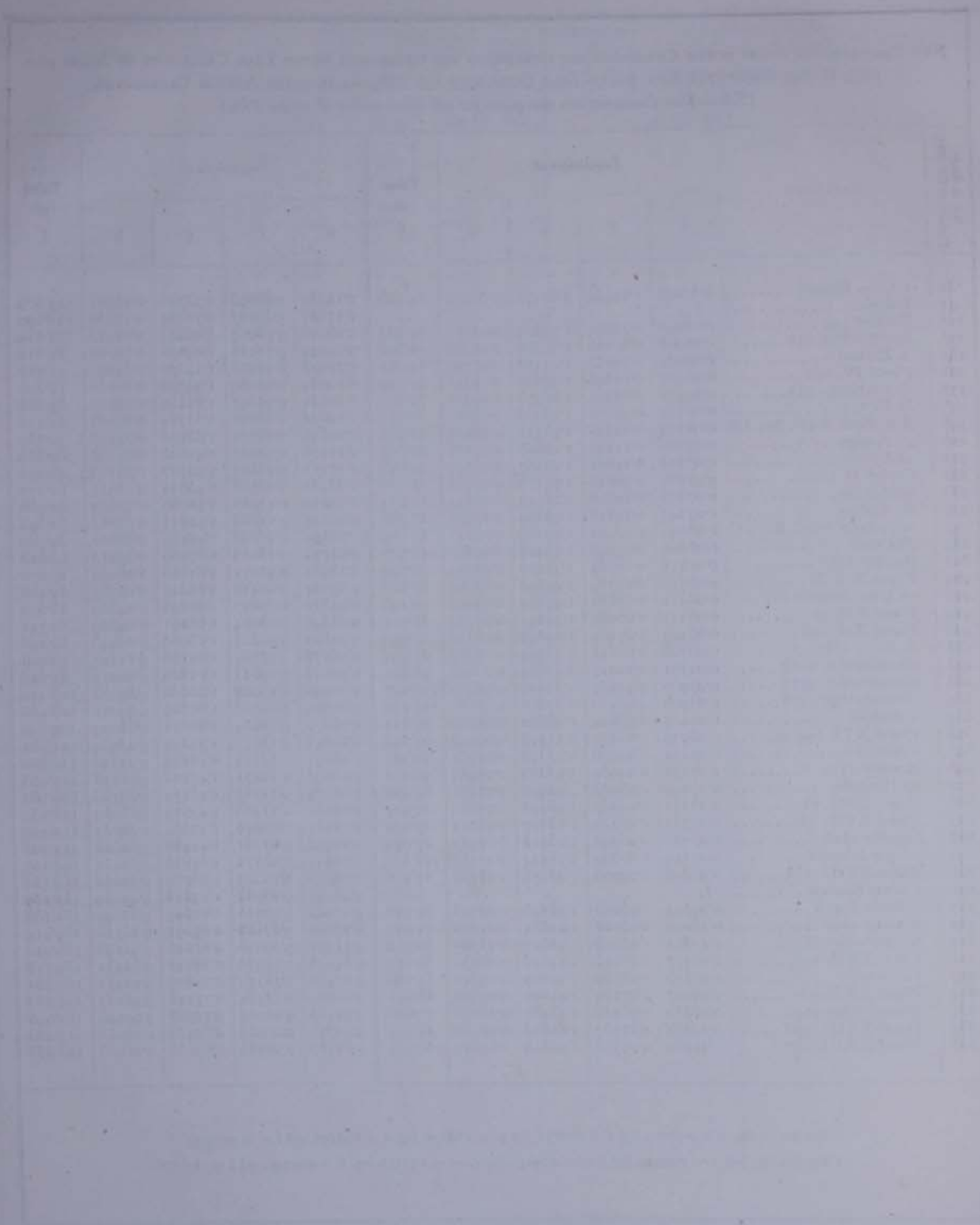
NEW CONSTANTS FOR STARS IN THE CATALOGUE NOT INCLUDED IN THE GREENWICH SEVEN-YEAR CATALOGUE OF STARS FOR 1860, IN THE GREENWICH NEW SEVEN-YEAR CATALOGUE FOR 1864, OR IN LATER ANNUAL CATALOGUES.

(N.B.—*New Constants are also given for all Stars within 5° of the Pole.*)

No. in Star-Catalogue for 1875.	Star's Name.	Logarithms of				Value of	Logarithms of				Value of
		e	f	g	h	l	e′	f′	g′	h′	l′
						′					″
31	2 Ursæ Minoris	0·31045	0·14454	1·50473	0·30992	34·635	0·14330	9·35893	0·73706	0·15381	127·339
41	Polaris	†..	..	..	..	..	0·17687	9·39887	0·77469	0·17986	121·199
115	Bradley 449	0·13040	0·13594	1·49529	0·12822	70·933	0·25105	9·75009	1·06493	0·28883	88·824
123	Groombridge 642	0·26368	0·30028	1·64358	0·26336	15·545	0·29044	9·76182	1·09676	0·29707	82·218
150	A Eridani	0·09051	0·10035	1·44485	0·07707	84·432	9·78625	0·10915	1·19376	0·31890	91·727
165	Piazzi IV. 148	0·08917	0·10395	1·45853	0·08395	82·719	0·10034	0·01069	1·24573	0·32830	78·508
178	Groombridge 928	0·09922	0·15304	1·50975	0·09838	72·857	0·30131	9·98397	1·30209	0·33627	57·588
195	B. F. 747	0·08261	0·10575	1·45956	0·08085	83·181	0·11528	0·05662	1·35214	0·34088	67·117
196	Arg. Zone +16°. No. 835	0·08212	0·10346	1·45425	0·08001	83·861	0·02649	0·06704	1·35493	0·34105	72·257
216	47 Aurigæ	0·07600	0·11292	1·46965	0·07687	82·568	0·21176	0·10230	1·42823	0·34163	50·583
222	10 Lyncis	0·07318	0·12682	1·48467	0·07391	80·665	0·27112	0·11507	1·43707	0·34106	43·078
232	Cephei 51	9·97889	0·40813	1·74275	9·97903	32·016	0·33482	0·13953	1·45624	0·33922	32·577
233	60 Aurigæ	0·07317	0·10846	1·46418	0·07544	83·634	0·16820	0·12085	1·46066	0·33867	50·966
235	62 Aurigæ	0·07242	0·10816	1·46389	0·07501	83·760	0·16519	0·12555	1·46811	0·33763	50·393
242	Arg. Zone +69°. No. 413	0·06094	0·13972	1·49739	0·06217	80·179	0·28890	0·16063	1·48169	0·33530	34·703
284	38 Cancri	0·06301	0·09895	1·45422	0·07367	85·927	0·02723	0·15025	1·57266	0·29813	53·523
318	Bradley 1363	0·03218	0·10984	1·47206	0·03724	88·062	0·18463	0·28571	1·61625	0·25060	29·376
404	Piazzi XII. 35	0·05412	0·07789	1·44843	0·08264	87·833	9·89104	0·02420	1·65349	0·05954	81·405
411	72 Ursæ Majoris	0·03412	0·07532	1·44554	0·04223	92·195	9·94571	0·30627	1·65298	0·04559	55·592
412	Piazzi XII. 91	0·05441	0·07689	1·44841	0·08082	88·011	9·88846	0·05384	1·65291	0·04389	80·741
435	Piazzi XII. 196	0·05449	0·07439	1·44896	0·08318	87·970	9·90569	0·01518	1·65005	0·00243	85·243
488	B. A. C. 4739	0·05733	0·06516	1·45194	0·08577	87·994	9·98078	9·97254	1·62155	9·81729	95·996
492	Groombridge 2108	0·02171	0·04027	1·41754	0·02602	98·361	9·70868	0·29327	1·61800	9·80017	82·528
533	Groombridge 2275	9·97950	9·93434	1·32906	9·98089	115·137	9·51996	0·25008	1·56530	9·59075	103·410
534	Groombridge 2276	9·97966	9·93420	1·32895	9·98109	115·130	9·51904	0·24986	1·56509	9·59001	103·488
539	3 Scorpii	0·06437	0·05634	1·45622	0·08526	87·812	0·06375	9·98664	1·55611	9·56029	104·540
575	Piazzi XVI. 140	0·05979	0·03039	1·41218	0·06225	94·645	9·25648	0·18544	1·51349	9·43934	121·152
595	e Herculis	0·07131	0·04958	1·43376	0·07461	90·251	9·45591	0·13132	1·48109	9·37146	126·820
596	Bradley 2172	0·07172	0·04950	1·43375	0·07486	90·212	9·45393	0·12871	1·47723	9·36488	127·465
602	63 Herculis	0·07293	0·05263	1·43906	0·07661	89·406	9·60574	0·11283	1·47270	9·35753	126·168
603	Piazzi XVII. 15	0·07297	0·05262	1·43905	0·07663	89·404	9·60531	0·11265	1·47229	9·35689	126·234
627	Piazzi XVII. 238	0·07712	0·05130	1·45867	0·08012	87·440	0·10254	0·06646	1·42374	9·30732	112·299
628	Lacaille 7508	0·07786	0·05098	1·45915	0·07982	87·392	0·10948	0·07081	1·41458	9·30363	112·203
640	δ Ursæ Minoris	0·10114	8·87564	0·74444	0·10110	138·351	9·24944	0·05876	1·37826	9·30432	143·229
657	Piazzi XVIII. 155	0·08346	0·05205	1·45775	0·07736	87·216	0·08863	0·10332	1·33770	9·32865	116·183
699	λ Ursæ Minoris	†..	..	..	..	..	9·48244	9·86984	1·19848	9·49359	157·139
717	Lalande 39408	0·09504	0·05588	1·43845	0·08718	86·960	9·62034	9·95916	1·12599	9·58599	151·138
782	Bradley 2897	0·15010	0·03058	1·40854	0·14768	81·989	9·77056	9·57168	0·89091	9·83725	159·414
810	Groombridge 3823	0·12302	0·05948	1·43357	0·11780	82·790	9·81491	9·59316	0·81246	9·91096	155·720
815	Piazzi XXII. 195	0·10177	0·07015	1·44643	0·08470	85·087	9·84048	9·98973	0·79842	9·92442	139·718
817	12 Lacertæ	0·10745	0·06780	1·44209	0·09740	84·263	9·80400	9·78211	0·79807	9·92478	150·381
824	Piazzi XXII. 250	0·10167	0·07169	1·44890	0·07690	85·341	9·90222	0·11184	0·77145	9·95122	128·263
839	Groombridge 4040	0·15330	0·06216	1·43437	0·15031	77·606	9·94433	9·42069	0·72906	9·99904	150·046
859	Piazzi XXIII. 193	0·10261	0·07732	1·44823	0·07983	84·737	9·88321	0·06953	0·69929	0·05038	127·475
863	Piazzi XXIII. 227	0·10264	0·07796	1·44828	0·07894	84·749	9·88457	0·08285	0·69636	0·06036	125·888

† For No. 41, log. e = 0·58007, log. f = 0·31832, log g. = 1·66030, log. h = 0·58798, and l = − 90″·559.

† For No. 699, log. e = 0·45339, log. f = − 0·29557, log g. = − 1·55135, log. h = 0·45335, and l = 160″·068.



ROYAL OBSERVATORY, GREENWICH.

HORIZONTAL AND VERTICAL DIAMETERS

AND

RIGHT ASCENSIONS AND NORTH POLAR DISTANCES

OF THE

SUN, MOON, AND PLANETS,

(The Right Ascensions of the Sun, Moon, and Planets corrected for Personal Equation when required; and the North Polar Distances corrected for Inequality in the Screws of the Microscope-Micrometers, for Discordance of Direct and Reflexion Results, for Errors of Division, and for Flexure of the Telescope of the Transit-Circle,)

DEDUCED FROM THE OBSERVATIONS,

AND

COMPARED WITH THE CORRESPONDING RESULTS OF THE NAUTICAL ALMANAC:

WITH

THE INFERRED POSITION OF THE ECLIPTIC; THE GEOCENTRIC ERRORS OF THE SUN, MOON, AND PLANETS IN LONGITUDE AND ECLIPTIC POLAR DISTANCE;

AND

THE EQUATIONS BETWEEN THE GEOCENTRIC ERRORS OF THE PLANETS AND THE HELIOCENTRIC ERRORS OF THE EARTH AND PLANETS IN LONGITUDE AND ECLIPTIC POLAR DISTANCE.

1875.

SIDEREAL TIMES occupied by the TRANSIT of the SUN'S DIAMETER; and VERTICAL DIAMETERS of the SUN, corrected for Refraction and Parallax: compared with the corresponding Results of the Nautical Almanac.

DAY.	Observer.	Observed Duration of Transit.	Seconds of Nautical Almanac.	Apparent Error of Nautical Almanac.	Observed Vertical Diameter.	Seconds of Nautical Almanac.	Apparent Error of Nautical Almanac.
1875.		m s	s	s	′ ″	″	″
Jan. 2	E	2. 22·12	22·06	− 0·06	32. 36·87	36·40	− 0·47
5	L	2. 21·55	21·74	+ 0·19	32. 37·13	36·20	− 0·93
6	AD	2. 21·43	21·62	+ 0·19	32. 35·09	36·20	+ 1·11
22	G	2. 18·54	18·80	+ 0·26	32. 30·06	34·20	+ 4·14
28	G	2. 17·12	17·46	+ 0·34	32. 29·66	32·80	+ 2·14
30	M	2. 16·92	17·00	+ 0·08	32. 32·16	32·20	+ 0·04
Feb. 1	L	2. 16·44	16·54	+ 0·14	32. 33·69	31·60	− 2·09
4	L	2. 15·75	15·84	+ 0·09	32. 31·39	30·60	− 0·79
5	G	2. 15·39	15·62	+ 0·23	32. 25·64	30·40	+ 4·76
15	C	2. 13·31	13·40	+ 0·09	32. 24·49	26·80	+ 2·31
16	L	2. 13·09	13·20	+ 0·11	32. 24·95	26·40	+ 1·45
18	G	2. 12·46	12·80	+ 0·34	....	...	...
22	J	2. 12·07	12·02	− 0·05	32. 22·07	23·80	+ 1·73
23	C	2. 11·82	11·84	+ 0·02	32. 21·03	23·40	+ 2·37
25	G	2. 11·26	11·50	+ 0·24	....	...	...
26	H	2. 10·99	11·34	+ 0·35	32. 21·65	21·80	+ 0·15
Mar. 5	J	2. 10·18	10·30	+ 0·12	32. 18·06	18·40	+ 0·34
9	AD	2. 9·77	9·82	+ 0·05	32. 16·42	16·40	− 0·02
10	G	2. 9·58	9·72	+ 0·14	32. 18·55	15·80	− 2·75
11	L	....	...	...	32. 19·76	15·40	− 4·36
15	W	....	...	...	32. 13·16	13·20	+ 0·04
18	L	2. 9·21	9·12	− 0·09	32. 16·66	11·60	− 5·06
23	W	2. 8·72	8·94	+ 0·22	32. 4·17	9·00	+ 4·83
27	T	....	...	...	32. 8·22	6·60	− 1·62
April 2	AD	2. 8·82	9·02	+ 0·20	32. 3·00	3·20	+ 0·20
5	T	2. 9·19	9·14	− 0·05	....	...	...
8	L	2. 9·24	9·34	+ 0·10	32. 1·67	0·00	− 1·67
14	T	....	...	...	31. 56·46	56·80	+ 6·34
16	G	2. 9·66	10·06	+ 0·40	31. 59·66	55·80	− 3·86
17	AD	2. 10·02	10·16	− 0·14	31. 53·15	55·20	+ 2·05
19	L	2. 10·62	10·40	− 0·22	31. 59·01	54·20	− 4·81
20	C	2. 10·62	10·52	− 0·10	31. 51·22	53·60	+ 2·38
24	T	2. 11·03	11·04	+ 0·01	31. 47·05	51·60	+ 4·55
28	G	2. 11·32	11·60	+ 0·28	31. 46·23	49·60	+ 3·37
29	AD	2. 11·61	11·76	+ 0·15	31. 48·05	49·00	+ 0·95
30	T	2. 11·69	11·92	+ 0·23	31. 46·61	48·60	+ 1·79
May 3	C	2. 12·34	12·38	+ 0·04	31. 47·93	47·20	− 0·73
4	T	2. 12·61	12·54	− 0·07	31. 47·56	46·60	− 0·96
5	J	2. 12·56	12·70	+ 0·14	31. 43·58	46·20	+ 2·62
6	AD	2. 12·77	12·86	+ 0·09	31. 43·83	45·80	+ 1·97
10	AD	2. 13·33	13·52	+ 0·19	31. 42·87	44·00	+ 1·13
11	T	2. 13·43	13·70	+ 0·27	31. 40·27	43·60	+ 3·33
12	L	....	...	...	31. 45·92	43·20	− 2·72
14	P	2. 13·97	14·20	+ 0·23	31. 39·82	42·40	+ 2·58
15	AD	2. 14·29	14·36	+ 0·07	31. 41·22	42·00	+ 0·78
17	L	....	...	...	31. 43·79	41·20	− 2·59
21	G	2. 15·06	15·30	+ 0·24	31. 39·64	39·80	+ 0·16
24	T	2. 15·57	15·74	+ 0·17	31. 39·30	38·80	− 0·50
25	P	....	...	...	31. 38·20	38·40	+ 0·20
26	J	....	...	...	31. 36·31	38·20	+ 1·89
31	AD	2. 16·57	16·66	+ 0·09	31. 35·45	36·60	+ 1·15
June 1	T	2. 16·68	16·78	+ 0·10	31. 35·38	36·20	+ 0·82
2	L	2. 16·88	16·90	+ 0·02	31. 43·02	36·00	− 7·02
3	P	2. 16·72	17·00	+ 0·28	31. 35·89	35·80	− 0·09
4	C	....	...	...	31. 33·57	35·40	+ 1·83
5	L	2. 17·21	17·20	− 0·01	31. 37·02	35·20	− 1·82
June 8	T	2. 17·40	17·46	+ 0·06	31. 32·20	34·60	+ 2·40
11	P	2. 17·49	17·66	+ 0·17	31. 35·52	34·00	− 1·52
18	C	2. 17·83	17·92	+ 0·09	31. 30·05	33·00	+ 2·95
19	G	2. 17·84	17·92	+ 0·08	31. 34·16	32·80	− 1·36
22	C	2. 17·75	17·92	+ 0·17	31. 29·76	32·40	+ 2·64
24	WL	2. 17·86	17·98	+ 0·12	31. 28·62	32·20	+ 3·52
25	G	2. 17·71	17·86	+ 0·15	31. 32·20	32·20	0·00
26	W	2. 17·51	17·82	+ 0·31	31. 29·79	32·00	+ 2·21
29	L	2. 17·48	17·68	+ 0·20	31. 32·21	32·00	− 0·21
July 2	P	2. 17·26	17·48	+ 0·22	31. 33·35	31·80	− 1·55
20	T	2. 15·11	15·32	+ 0·21	....	...	...
24	W	2. 14·40	14·68	+ 0·28	31. 33·82	34·00	+ 0·18
26	C	2. 14·36	14·34	− 0·02	31. 30·59	34·20	+ 3·61
27	AD	2. 13·96	14·16	+ 0·20	31. 32·45	34·40	+ 1·95
28	T	2. 13·85	14·00	+ 0·15	31. 29·65	34·60	+ 4·95
29	L	2. 13·73	13·82	+ 0·09	31. 39·35	34·80	− 4·55
Aug. 3	P	2. 12·81	12·96	+ 0·15	31. 38·01	36·20	− 1·81
5	G	2. 12·35	12·60	+ 0·25	31. 36·17	36·60	+ 0·43
7	RP	2. 12·06	12·26	+ 0·20	31. 35·83	37·20	+ 1·37
10	G	....	...	...	31. 37·40	38·20	+ 0·80
16	RP	2. 10·83	10·80	− 0·03	31. 42·30	40·40	− 1·90
17	T	2. 10·50	10·66	+ 0·16	31. 41·29	40·80	− 0·49
18	L	2. 10·39	10·50	+ 0·11	31. 40·77	41·20	+ 0·43
20	WL	....	...	...	31. 43·44	41·80	− 1·64
21	P	....	...	...	31. 41·43	42·20	+ 0·77
31	RP	2. 8·82	8·90	+ 0·08	31. 46·83	46·40	− 0·43
Sept. 1	AD	2. 8·68	8·82	+ 0·14	31. 46·28	47·00	+ 0·72
4	P	2. 8·34	8·58	+ 0·24	31. 45·35	48·40	+ 3·05
6	C	....	...	...	31. 46·50	49·40	+ 2·90
7	AD	2. 8·24	8·38	+ 0·14	31. 49·57	49·80	+ 0·23
9	P	2. 8·08	8·28	+ 0·20	31. 50·85	50·80	− 0·05
13	T	2. 8·17	8·14	− 0·03	31. 56·97	52·80	− 4·17
14	C	2. 8·09	8·12	+ 0·03	31. 52·53	53·40	+ 0·87
15	AD	2. 8·00	8·10	+ 0·10	31. 52·67	54·00	+ 1·33
16	RP	2. 8·05	8·10	+ 0·05	31. 55·71	54·40	− 1·31
17	WL	2. 7·90	8·08	+ 0·18	....	...	...
18	C	2. 8·15	8·10	− 0·05	31. 52·50	55·60	+ 3·10
20	P	2. 7·91	8·12	+ 0·21	31. 55·18	56·60	+ 1·42
27	C	....	...	...	31. 58·23	60·40	+ 2·17
30	P	2. 8·41	8·60	+ 0·19	32. 1·73	2·00	+ 0·27
Oct. 6	AD	2. 9·04	9·18	+ 0·14	32. 5·00	5·40	+ 0·40
12	C	2. 9·87	9·98	+ 0·11	....	...	...
13	L	2. 10·15	10·14	− 0·01	....	...	...
16	C	2. 10·50	10·62	+ 0·12	32. 8·37	11·00	+ 2·63
25	P	2. 12·05	12·30	+ 0·25	32. 13·80	15·60	+ 1·80
Nov. 8	C	2. 15·48	15·48	0·00	32. 18·48	22·60	+ 4·12
12	P	2. 16·23	16·44	− 0·21	32. 20·06	24·60	+ 4·54
15	T	2. 16·95	17·16	+ 0·21	32. 25·93	25·80	− 0·03
18	G	....	...	...	32. 24·78	27·00	+ 2·22
23	L	2. 18·95	18·96	+ 0·01	32. 30·26	28·80	− 1·46
Dec. 10	G	2. 21·75	21·86	+ 0·11	32. 34·25	34·00	− 0·25
13	L	2. 22·17	22·16	− 0·01	32. 30·25	34·60	+ 4·35
14	P	2. 22·02	22·24	+ 0·22	32. 32·78	34·80	+ 2·02
17	WL	2. 22·22	22·44	+ 0·22	32. 35·69	35·20	− 0·49
23	L	2. 22·47	22·58	+ 0·11	32. 38·09	36·00	− 2·09

SIDEREAL TIMES occupied by the TRANSIT of the MOON'S DIAMETER; and VERTICAL DIAMETERS of the MOON, corrected for Refraction, Parallax, and Defect of Illumination: compared with the corresponding Results of the Nautical Almanac.

DAY.	Observer.	Observed Duration of Transit.	Seconds of Nautical Almanac.	Apparent Error of Nautical Almanac.	Observed Vertical Diameter.	Seconds of Nautical Almanac.	Apparent Error of Nautical Almanac.
1875.		m s	s	s	′ ″	″	″
Jan. 18	S	....	...	...	32. 20·36	22·60	+ 2·24
March 21	AD	....	...	...	30. 3·70	2·20	− 1·50
April 19	L	....	...	...	29. 43·48	39·00	− 4·48
May 18	C	....	...	...	29. 30·20	28·40	− 1·80
June 16	T	....	...	...	29. 28·56	30·80	+ 2·24
18	C	2. 20·24	20·28	+ 0·04	....	...	...
Aug. 16	RP	2. 14·83	15·12	+ 0·29	....	...	...
Sept. 8	WL	....	...	...	29. 38·17	44·20	+ 6·03
15	AD	....	...	...	32. 10·57	10·20	− 0·37
Oct. 6	AD	....	...	...	29. 39·78	41·40	+ 1·62

VERTICAL DIAMETERS of MERCURY, corrected for Refraction, Parallax, and Defect of Illumination: compared with the corresponding Results of the Nautical Almanac.

DAY.	Observer.	Observed Vertical Diameter.	Diameter from Nautical Almanac.	Apparent Error of Nautical Almanac.
1875.		″	″	″
Feb. 1	L	4·05	5·40	+ 1·35
May 17	L	8·56	5·40	− 3·16
31	AD	9·00	6·60	− 2·40
June 3	P	7·74	7·10	− 0·64
Aug. 15	RP	8·74	5·00	− 3·74
Sept. 7	AD	8·36	5·00	− 3·36
Nov. 18	W	6·34	6·10	− 0·24

SIDEREAL TIMES occupied by the TRANSIT of the DIAMETER of VENUS, and VERTICAL DIAMETERS of VENUS, corrected for Refraction, Parallax, and Defect of Illumination: compared with the corresponding results of the Nautical Almanac.

DAY.	Observer.	Observed Duration of Transit.	Seconds of Nautical Almanac.	Apparent Error of Nautical Almanac.	Observed Vertical Diameter.	Diameter from Nautical Almanac.	Apparent Error of Nautical Almanac.
1875.		s	s	s	″	″	″
Jan. 18	AD	....	...	...	36·80	39·83	+3·03
20	C	....	...	...	37·71	35·70	−2·01
21	G	....	...	...	37·15	35·20	−1·95
31	J	....	...	...	33·36	30·40	−2·96
Feb. 21	J	....	...	...	25·62	23·50	−2·12
Mar. 4	J	....	...	...	21·71	21·00	−0·71
9	G	....	...	...	20·91	20·00	−0·91
22	L	....	...	...	19·23	18·00	−1·23

DAY.	Observer.	Observed Duration of Transit.	Seconds of Nautical Almanac.	Apparent Error of Nautical Almanac.	Observed Vertical Diameter.	Diameter from Nautical Almanac.	Apparent Error of Nautical Almanac.
1875.		s	s	s	″	″	″
Mar. 24	AD	....	...	...	18·00	17·60	−0·40
26	T	....	...	...	17·82	17·40	−0·42
April 5	J	....	...	...	17·08	16·00	−1·08
7	L	....	...	...	21·01	15·80	−5·21
13	T	....	...	...	18·37	15·20	−3·17
15	G	....	...	...	16·97	15·00	−1·97
16	AD	....	...	...	17·14	14·90	−2·24
18	L	....	...	...	18·20	14·70	−3·50
19	C	....	...	...	14·07	14·60	+0·53

SIDEREAL TIMES occupied by the TRANSIT of the DIAMETER of VENUS, and VERTICAL DIAMETERS of VENUS, corrected for Refraction, Parallax, and Defect of Illumination: compared with the corresponding results of the Nautical Almanac—*concluded.*

DAY.	Observer.	Observed Duration of Transit.	Duration from Nautical Almanac.	Apparent Error of Nautical Almanac.	Observed Vertical Diameter.	Diameter from Nautical Almanac.	Apparent Error of Nautical Almanac.
1875.		s	s	s	"	"	"
April 22	L	....	...	...	13·64	14·50	+0·86
23	T	....	...	...	14·50	14·40	−0·10
29	T	....	...	...	16·11	13·80	−2·31
May 2	C	....	...	...	15·56	13·70	−1·86
5	AD	....	...	...	13·63	13·40	−0·23
10	T	....	...	...	13·23	13·10	−0·13
11	L	....	...	...	15·47	13·00	−2·47
16	L	....	...	...	15·83	12·70	−3·13
20	G	....	...	...	14·41	12·50	−1·91
23	T	....	...	...	10·68	12·20	+1·52
31	T	....	...	...	16·46	11·80	−4·66
June 1	L	....	...	...	15·36	11·80	−3·56
2	P	....	...	...	14·36	11·80	−2·56
3	C	....	...	...	11·51	11·80	+0·29
8	G	....	...	...	14·28	11·60	−2·68
10	P	....	...	...	13·78	11·40	−2·38
18	G	....	...	...	13·42	11·20	−2·22
24	G	....	...	...	12·94	11·00	−1·94
1875.		s	s	s	"	"	"
July 1	P	....	...	...	12·30	10·80	−1·50
5	C	....	...	...	6·31	10·60	+4·29
12	L	....	...	...	12·18	10·40	−1·78
27	T	....	...	...	11·95	10·10	−1·85
30	AD	....	...	...	10·13	10·00	−0·13
Aug. 9	G	0·82	0·70	−0·12	13·56	9·80	−3·76
13	P	0·95	0·68	−0·27	13·27	9·80	−3·47
15	RP	....	...	...	12·27	9·80	−2·47
16	T	....	...	...	12·75	9·80	−2·95
22	G	0·58	0·68	+0·10	12·31	9·80	−2·51
30	RP	....	...	...	8·27	9·80	+1·53
Sept. 3	P	....	...	...	11·62	9·80	−1·82
5	C	....	...	...	9·84	9·70	−0·14
6	AD	....	...	...	10·81	9·60	−1·21
Oct. 12	C	....	...	...	8·48	9·80	+1·32
Nov. 15	T	....	...	...	11·50	10·00	−1·50
18	G	....	...	...	14·31	10·20	−4·11

SIDEREAL TIMES occupied by the TRANSIT of the DIAMETER of MARS, and VERTICAL DIAMETERS of MARS, corrected for Refraction, Parallax, and Defect of Illumination: compared with the corresponding Results of the Nautical Almanac.

Mar. 24	L	....	...	...	11·41	11·20	−0·21
April 24	AD	....	...	...	15·44	15·40	−0·04
May 21	G	1·31	1·50	+0·19	19·18	20·60	+1·42
22	C	1·49	1·52	+0·03	....	...	...
24	T	1·67	1·56	−0·11	22·65	21·20	−1·45
26	J	1·62	1·60	−0·02	23·15	21·60	−1·55
31	AD	1·63	1·68	+0·05	22·85	22·60	−0·25
June 1	T	....	...	...	25·05	22·80	−2·25
3	P	1·61	1·72	+0·11	(13·64)	23·20	(+9·56)
8	T	1·71	1·79	+0·08	24·50	24·00	−0·50
11	P	1·64	1·83	+0·19	22·90	24·50	+1·60
12	T	1·91	1·84	−0·07	25·80	24·60	−1·20
16	T	1·94	1·88	−0·06	26·07	25·00	−1·07
19	G	1·65	1·90	+0·25	28·84	25·40	−3·44
24	WL	0·61	1·92	+0·31	26·24	25·60	−0·64
25	G	1·89	1·93	+0·04	28·11	25·60	−2·51
26	W	2·04	1·94	−0·10	25·22	25·60	+0·38
July 1	AD	1·84	1·94	+0·10	23·14	25·60	+2·46
6	C	1·99	1·92	−0·07	23·09	25·40	+2·31
12	T	1·97	1·86	−0·11	25·47	24·60	−0·87
28	T	....	...	...	22·05	22·40	+0·35
29	L	....	...	...	21·86	22·30	+0·44
31	AD	....	...	...	22·01	22·00	−0·01
Aug. 3	P	1·59	1·62	+0·03	21·44	21·40	−0·04
4	T	....	...	...	22·78	21·30	−1·48
6	AD	....	...	...	17·41	21·00	+3·59
7	RP	1·24	1·56	+0·32	18·13	20·80	+2·67
16	RP	....	...	...	18·01	19·30	+1·29
Aug. 23	G	....	...	...	19·67	18·20	−1·47
25	T	....	...	...	19·60	18·00	−1·60
30	C	....	...	...	16·07	17·30	+1·23
31	RP	....	...	...	17·73	17·20	−0·53
Sept. 3	W	....	...	...	17·19	16·70	−0·49
4	P	....	...	...	15·75	16·60	+0·85
6	C	....	...	...	16·51	16·20	−0·31
8	WL	....	...	...	16·98	16·00	−0·98
9	P	....	...	...	16·07	15·90	−0·17
14	C	....	...	...	16·68	15·20	−1·48
15	AD	....	...	...	16·44	15·10	−1·34
17	WL	....	...	...	15·77	14·90	−0·87
18	C	....	...	...	17·03	14·80	−2·23
27	C	....	...	...	15·38	13·90	−1·48
29	AD	....	...	...	14·67	13·70	−0·97
Oct. 6	AD	....	...	...	14·31	13·00	−1·31
8	C	....	...	...	11·76	12·80	+1·04
16	C	....	...	...	12·35	12·20	−0·15
21	WL	....	...	...	15·49	11·70	−3·79
25	P	....	...	...	11·00	11·30	+0·30
Nov. 4	C	....	...	...	12·10	10·60	−1·50
8	C	....	...	...	13·89	10·40	−3·49
12	P	....	...	...	8·27	10·10	+1·83
15	T	....	...	...	8·19	10·00	+1·81
18	G	....	...	...	13·78	9·70	−4·08
29	AD	....	...	...	10·22	9·20	−1·02
Dec. 17	WL	....	...	...	10·08	8·20	−1·88
22	AD	....	...	...	8·74	8·00	−0·74
23	L	....	...	...	11·54	8·00	−3·54

SIDEREAL TIMES occupied by the TRANSIT of the DIAMETER of JUPITER; and VERTICAL DIAMETERS of JUPITER, corrected for Refraction and Parallax: compared with the corresponding results of the Nautical Almanac.

DAY.	Observer.	Observed Duration of Transit.	Duration from Nautical Almanac.	Apparent Error of Nautical Almanac.	Observed Vertical Diameter.	Diameter from Nautical Almanac.	Apparent Error of Nautical Almanac.
1875.		s	s	s	″	″	″
Mar. 9	AD	2·74	2·88	+0·14	44·33	39·60	−4·73
24	G	....	...	...	42·81	40·80	−2·01
April 5	T	....	...	...	44·72	41·40	−3·32
13	AD	3·02	3·04	+0·02	43·16	41·60	−1·56
14	T	2·94	3·04	+0·10	43·52	41·60	−1·92
15	C	3·18	3·04	−0·14	43·46	41·60	−1·86
16	G	2·84	3·04	+0·20	46·51	41·60	−4·91
17	AD	3·04	3·04	0·00	45·66	41·60	−4·06
19	L	3·14	3·04	−0·10	46·45	41·60	−4·85
20	C	3·13	3·04	−0·09	43·03	41·60	−1·43
24	T	2·72	3·03	+0·31	44·01	41·60	−2·41
27	P	2·80	3·02	+0·22	42·16	41·40	−0·76
28	G	2·94	3·02	+0·08	45·12	41·40	−3·72
29	AD	3·10	3·02	−0·08	43·66	41·40	−2·26
30	T	2·96	3·01	+0·05	42·55	41·40	−1·15
May 4	T	2·90	2·99	+0·09	42·89	41·30	−1·59
10	AD	2·96	2·96	0·00	41·80	40·90	−0·90
May 11	T	1·90	1·96	+0·06	43·37	40·80	−2·57
12	L	3·07	2·96	−0·11	43·49	40·80	−2·69
13	T	2·95	2·96	+0·01	42·96	40·80	−2·16
14	P	2·76	2·95	+0·19	41·47	40·70	−0·77
15	AD	3·02	2·94	−0·08	41·10	40·60	−0·50
18	C	3·08	2·93	−0·15	42·46	40·30	−2·16
19	AD	2·84	2·92	+0·08	42·46	40·20	−2·26
21	G	2·84	2·92	+0·08	44·06	40·20	−3·86
22	C	3·02	2·92	−0·10	42·38	40·10	−2·28
24	T	2·82	2·91	+0·09	41·24	39·90	−1·34
25	P	2·65	2·90	+0·25	39·39	39·80	+0·41
26	J	2·90	2·89	+0·01	42·35	39·70	−2·65
31	AD	2·86	2·86	0·00	40·67	39·40	−1·27
June 1	T	....	...	...	41·72	39·30	−2·42
2	L	2·89	2·84	−0·05	43·00	39·20	−3·80
3	P	....	...	...	38·93	39·10	+0·17
8	T	2·72	2·80	+0·08	40·96	38·60	−2·36
9	G	2·71	2·79	+0·08	40·92	38·50	−2·42

SIDEREAL TIMES occupied by the TRANSIT of the DIAMETER of SATURN; and VERTICAL DIAMETERS of SATURN, corrected for Refraction and Parallax: compared with the corresponding results of the Nautical Almanac.

DAY.	Observer.	Observed Duration of Transit.	Duration from Nautical Almanac.	Apparent Error of Nautical Almanac.	Observed Vertical Diameter.	Diameter from Nautical Almanac.	Apparent Error of Nautical Almanac.
July 1	L	1·29	1·22	−0·07	19·42	16·60	−2·82
28	T	1·30	1·26	−0·04	19·21	16·80	−2·41
Aug. 2	L	1·27	1·28	+0·01	19·54	17·00	−2·54
4	T	1·32	1·28	−0·04	18·92	17·00	−1·92
12	WL	1·16	1·28	+0·12	19·55	17·00	−2·55
16	RP	1·12	1·28	+0·16	19·10	17·00	−2·10
20	WL	1·23	1·28	+0·05	18·98	17·00	−1·98
23	G	1·20	1·28	+0·08	21·07	17·00	−4·07
24	RP	1·15	1·28	+0·13	20·45	17·00	−3·45
25	T	1·27	1·28	+0·01	18·00	17·00	−1·00
31	RP	1·20	1·26	+0·06	19·37	16·80	−2·57
Sept. 3	W	1·32	1·26	−0·06	18·78	16·80	−1·98
6	C	....	...	...	17·63	16·80	−0·83
7	AD	1·36	1·26	−0·10	18·61	16·80	−1·81
8	WL	1·39	1·26	−0·13	....	...	...
9	P	1·25	1·26	+0·01	19·45	16·80	−2·65
14	C	1·38	1·25	−0·13	19·98	16·70	−3·28
15	AD	1·32	1·24	−0·08	18·08	16·60	−1·48
17	WL	1·21	1·24	+0·03	18·67	16·60	−2·07
18	C	1·30	1·24	−0·06	16·53	16·60	+0·07
20	P	1·33	1·24	−0·09	18·09	16·60	−1·49
Sept. 25	AD	1·21	1·24	+0·03	18·40	16·60	−1·80
27	C	1·37	1·22	−0·15	....	...	...
29	AD	1·38	1·22	−0·16	18·76	16·60	−2·16
30	P	1·43	1·22	−0·21	17·68	16·60	−1·08
Oct. 2	AD	1·24	1·22	−0·02	18·92	16·50	−2·42
5	C	1·37	1·22	−0·15	17·93	16·40	−1·53
6	AD	1·31	1·22	−0·09	18·99	16·40	−2·59
8	C	1·33	1·22	−0·11	16·96	16·40	−0·56
9	L	1·35	1·22	−0·13	19·61	16·40	−3·21
12	C	1·25	1·21	−0·04	18·19	16·30	−1·89
13	L	1·35	1·20	−0·15	19·37	16·20	−3·17
16	C	1·36	1·20	−0·16	17·51	16·20	−1·31
21	WL	....	...	...	16·50	16·00	−0·50
25	P	1·28	1·20	−0·08	15·80	16·00	+0·20
Nov. 4	C	1·31	1·18	−0·13	15·97	15·60	−0·37
8	C	1·26	1·16	−0·10	15·27	15·40	+0·13
12	P	1·18	1·16	−0·02	15·88	15·40	−0·48
15	T	1·28	1·15	−0·13	16·57	15·30	−1·27
18	G	1·18	1·14	−0·04	18·33	15·20	−3·13
29	AD	1·13	1·12	−0·01	17·41	15·00	−2·41

SIDEREAL TIMES occupied by the TRANSIT of the DIAMETER of URANUS; and VERTICAL DIAMETERS of URANUS, corrected for Refraction and Parallax: compared with the corresponding results of the Nautical Almanac.

DAY.	Observer.	Observed Duration of Transit.	Duration from Nautical Almanac.	Apparent Error of Nautical Almanac.	Observed Vertical Diameter.	Diameter from Nautical Almanac.	Apparent Error of Nautical Almanac.
Feb. 1	L	0·35	0·30	−0·05	4·12	4·20	+0·08
Mar. 4	AD	....	...	...	5·52	4·20	−1·32
9	AD	....	...	...	4·86	4·20	−0·66
April 2	AD	....	...	...	5·21	4·20	−1·01
April 5	T	....	...	...	5·90	4·20	−1·70
6	J	....	...	...	5·22	4·20	−1·02
12	L	0·35	0·30	−0·05	5·23	4·20	−1·03
13	AD	....	...	...	5·10	4·20	−0·90
14	T	....	...	...	4·21	4·20	−0·01

RIGHT ASCENSIONS and NORTH POLAR DISTANCES of the CENTER of the SUN.

Mean Solar Time of Transit of Center.	Observer.	R.A. from Observation.	Seconds of R.A. in Nautical Almanac.	Apparent Error of Nautical Almanac in R.A.	N.P.D. from Observation.	Seconds of N.P.D. in Nautical Almanac.	Apparent Error of Nautical Almanac in N.P.D.
1875. d h m s		h m s	s	s	° ′ ″	″	″
Jan. 2. 0. 4. 13·3	E	18. 51. 5·65	5·71	+ 0·06	112. 56. 12·56	16·60	+ 4·04
5. 0. 5. 36·0	L	19. 4. 18·20	18·34	+ 0·14	112. 38. 3·13	4·50	+ 1·37
6. 0. 6. 2·8	AD	19. 8. 41·60	41·73	+ 0·13	112. 31. 6·68	6·30	− 0·38
22. 0. 11. 49·5	G	20. 17. 34·24	34·27	+ 0·03	109. 42. 3·81	4·30	+ 0·49
28. 0. 13. 11·3	G	20. 42. 35·63	35·65	+ 0·02	108. 13. 22·71	24·60	+ 1·89
30. 0. 13. 32·1	M	20. 50. 49·56	49·75	+ 0·19	107. 41. 8·13	9·60	+ 1·47
Feb. 1. 0. 13. 50·0	L	20. 59. 0·63	0·64	+ 0·01	107. 7. 36·38	38·90	+ 2·52
4. 0. 14. 10·5	L	21. 11. 10·80	10·89	+ 0·09	106. 15. 6·82	7·90	+ 1·08
5. 0. 14. 15·6	G	21. 15. 12·70	12·68	− 0·02	105. 57. 2·15	3·20	+ 1·05
15. 0. 14. 23·8	C	21. 54. 46·32	46·33	+ 0·01	102. 42. 22·96	24·10	+ 1·14
16. 0. 14. 20·2	L	21. 58. 39·24	39·42	+ 0·18	102. 21. 42·51	42·50	− 0·01
18. 0. 14. 11·3	G	22. 6. 23·47	23·42	− 0·05	101. 39. 43·15	44·70	+ 1·55
22. 0. 13. 44·8	J	22. 21. 43·04	43·17	+ 0·13	100. 13. 40·07	41·20	+ 1·13
23. 0. 13. 36·8	C	22. 25. 31·57	31·50	− 0·07	99. 51. 44·03	45·90	+ 1·87
25. 0. 13. 18·4	G	22. 33. 6·28	6·36	+ 0·08	99. 7. 29·13	28·70	− 0·43
26. 0. 13. 8·4	H	22. 36. 52·79	52·93	+ 0·14	98. 45. 6·18	7·50	+ 1·32
Mar. 5. 0. 11. 44·5	J	23. 3. 4·58	4·55	− 0·03	96. 5. 19·80	21·50	+ 1·70
9. 0. 11. 51·3	AD	23. 17. 52·71	52·77	+ 0·06	94. 32. 2·86	3·70	+ 0·84
10. 0. 10. 31·2	G	23. 21. 33·77	33·87	+ 0·10	94. 8. 32·41	34·60	+ 2·19
11. 0. 10. 15·5	L	....	...	...	93. 45. 2·04	2·60	+ 0·56
15. 0. 9. 9·3	L	....	...	...	92. 10. 31·33	32·50	+ 1·17
18. 0. 8. 17·0	L	23. 50. 51·68	51·65	− 0·03	90. 59. 26·83	27·50	+ 0·67
23. 0. 6. 46·3	W	0. 9. 3·49	3·46	− 0·03	89. 1. 2·23	3·90	+ 1·67
27. 0. 5. 32·2	T	0. 23. 35·44	35·53	+ 0·09	87. 26. 47·92	49·00	+ 1·08
April 2. 0. 3. 42·4	AD	0. 45. 24·64	24·70	+ 0·06	85. 7. 4·28	3·60	− 0·68
5. 0. 2. 49·3	T	0. 56. 21·06	20·88	− 0·18	83. 58. 15·23	15·10	− 0·13
8. 0. 1. 57·5	L	....	...	...	82. 50. 22·18	22·60	+ 0·42
14. 0. 0. 20·6	T	1. 29. 20·88	20·94	+ 0·06	80. 38. 6·89	5·20	− 1·69
15. 23. 59. 50·5	G	1. 36. 43·83	44·04	+ 0·21	79. 55. 11·36	11·30	− 0·06
16. 23. 59. 36·4	AD	1. 40. 26·22	26·11	− 0·11	79. 33. 59·12	59·30	+ 0·18
18. 23. 59. 8·4	L	1. 47. 51·30	51·38	+ 0·08	78. 52. 7·13	6·60	− 0·53
19. 23. 58. 55·1	C	1. 51. 34·57	34·62	+ 0·05	78. 31. 23·78	26·60	+ 2·82
23. 23. 58. 6·5	T	2. 6. 31·97	31·97	0·00	77. 10. 41·03	42·40	+ 1·37
26. 23. 57. 35·2	P	2. 17. 50·31	50·02	− 0·29	76. 12. 18·54	19·50	+ 0·96
27. 23. 57. 25·5	G	2. 21. 37·08	37·06	− 0·02	75. 53. 19·02	18·30	− 0·72
28. 23. 57. 16·4	AD	2. 25. 24·60	24·62	+ 0·02	75. 34. 30·01	31·00	+ 0·99
29. 23. 57. 8·3	T	2. 29. 13·00	12·73	− 0·27	75. 15. 55·80	57·70	+ 1·90
May 2. 23. 56. 45·9	C	2. 40. 40·22	40·36	+ 0·14	74. 21. 44·51	46·00	+ 1·49
3. 23. 56. 39·7	T	2. 44. 30·54	30·69	+ 0·15	74. 4. 12·04	12·50	+ 0·46
4. 23. 56. 34·2	J	2. 48. 21·57	21·59	+ 0·02	73. 46. 54·63	54·80	+ 0·17
5. 23. 56. 29·1	AD	2. 52. 13·02	13·06	+ 0·04	73. 29. 52·73	53·30	+ 0·57
7. 23. 56. 20·8	L	2. 59. 57·65	57·68	+ 0·03	72. 56. 37·77	39·80	+ 2·03
9. 23. 56. 14·6	AD	3. 7. 44·65	44·55	− 0·10	72. 24. 34·95	34·80	− 0·15
10. 23. 56. 12·2	T	3. 11. 38·88	38·82	− 0·06	72. 8. 58·58	58·70	+ 0·12
11. 23. 56. 10·4	L	3. 15. 33·55	33·64	+ 0·09	71. 53. 40·01	40·70	+ 0·69
13. 23. 56. 8·7	P	3. 23. 25·00	24·95	− 0·05	71. 23. 60·36	59·80	− 0·56
14. 23. 56. 8·6	AD	3. 27. 21·45	21·44	− 0·01	71. 9. 36·01	37·50	+ 1·49
16. 23. 56. 10·1	L	....	...	...	70. 41. 48·97	50·40	+ 1·43
20. 23. 56. 19·8	G	3. 51. 12·00	12·04	+ 0·04	69. 50. 11·94	13·60	+ 1·66
23. 23. 56. 32·8	T	4. 3. 14·76	14·73	− 0·03	69. 15. 5·60	6·10	+ 0·50
24. 23. 56. 38·0	P	4. 7. 16·48	16·68	+ 0·20	69. 4. 6·27	5·80	− 0·47
25. 23. 56. 44·1	J	4. 11. 19·19	19·15	− 0·04	68. 53. 28·16	27·10	− 1·06
30. 23. 57. 20·7	AD	4. 31. 38·72	38·85	+ 0·13	68. 5. 43·45	43·60	+ 0·15
31. 23. 57. 29·5	T	4. 35. 44·05	44·18	+ 0·13	67. 57. 17·82	18·50	+ 0·68
June 1. 23. 57. 38·7	L	4. 39. 49·87	49·93	+ 0·06	67. 49. 15·28	16·40	+ 1·12
2. 23. 57. 48·2	P	4. 43. 55·96	56·08	+ 0·12	67. 41. 37·28	37·50	+ 0·22
3. 23. 57. 58·3	C	....	...	...	67. 34. 21·47	22·00	+ 0·53
4. 23. 58. 8·5	L	4. 52. 9·42	9·49	+ 0·07	67. 27. 29·28	30·00	+ 0·72
7. 23. 58. 41·3	T	5. 4. 31·94	31·99	+ 0·05	67. 9. 16·93	16·70	− 0·23

RIGHT ASCENSIONS and NORTH POLAR DISTANCES of the CENTER of the SUN—*concluded.*

Mean Solar Time of Transit of Center.	Observer.	R.A. from Observation.	Seconds of R.A. in Nautical Almanac.	Apparent Error of Nautical Almanac in R.A.	N.P.D. from Observation.	Seconds of N.P.D. in Nautical Almanac.	Apparent Error of Nautical Almanac in N.P.D.
1875. d h m s		h m s	s	s	° ′ ″	″	″
June 10. 23. 59. 16·2	P	5. 16. 56·65	56·80	+ 0·15	66. 54. 40·48	40·60	+ 0·12
18. 0. 0. 43·9	C	5. 46. 0·48	0·52	+ 0·04	66. 34. 53·46	53·00	− 0·46
19. 0. 0. 56·6	G	5. 50. 9·81	9·99	+ 0·18	66. 33. 41·41	42·00	+ 0·59
22. 0. 1. 35·6	C	6. 2. 38·56	38·52	− 0·04	66. 32. 36·68	37·50	+ 0·82
24. 0. 2. 1·1	WL	6. 10. 57·28	57·41	+ 0·13	66. 33. 55·19	58·40	+ 3·21
25. 0. 2. 13·9	G	6. 15. 6·62	6·76	+ 0·14	66. 35. 14·22	15·90	+ 1·68
26. 0. 2. 26·6	W	6. 19. 15·92	16·02	+ 0·10	66. 36. 57·29	58·20	+ 0·91
29. 0. 3. 3·8	L	6. 31. 42·94	43·02	+ 0·08	66. 44. 31·46	32·90	+ 1·44
July 2. 0. 3. 39·0	P	6. 44. 8·37	8·36	− 0·01	66. 55. 47·31	48·20	+ 0·89
20. 0. 6. 2·5	T	7. 57. 29·84	29·86	+ 0·02	69. 17. 9·94	10·10	+ 0·16
23. 0. 6. 10·7	RP	8. 9. 27·77	27·81	+ 0·04	69. 52. 15·01	15·20	+ 0·19
24. 0. 6. 12·3	W	8. 13. 25·89	26·01	+ 0·12	70. 4. 37·53	37·70	+ 0·17
26. 0. 6. 13·9	C	8. 21. 20·66	20·72	+ 0·06	70. 30. 22·51	22·50	− 0·01
27. 0. 6. 13·9	AD	8. 25. 17·17	17·22	+ 0·05	70. 43. 42·12	44·30	+ 2·18
28. 0. 6. 13·3	T	8. 29. 13·16	13·15	− 0·01	70. 57. 25·80	25·30	− 0·50
29. 0. 6. 12·1	L	8. 33. 8·47	8·49	+ 0·02	71. 11. 24·55	25·20	+ 0·65
31. 0. 6. 7·7	AD	8. 40. 57·24	57·41	+ 0·17	71. 40. 21·10	20·90	− 0·20
Aug. 2. 0. 6. 1·3	L	....	...	...	72. 10. 27·62	28·70	+ 1·08
3. 0. 5. 57·0	P	8. 52. 36·17	36·24	+ 0·07	72. 25. 58·78	59·00	+ 0·22
5. 0. 5. 46·8	G	9. 0. 19·05	19·05	0·00	72. 57. 48·94	50·60	+ 1·66
7. 0. 5. 34·1	RP	9. 7. 59·35	59·41	+ 0·06	73. 30. 44·65	48·30	+ 3·65
10. 0. 5. 10·6	G	9. 19. 25·50	25·43	− 0·07	74. 22. 12·10	13·20	+ 1·10
16. 0. 4. 7·7	RP	9. 42. 1·75	1·81	+ 0·06	76. 11. 36·37	37·90	+ 1·53
17. 0. 3. 55·3	T	9. 45. 45·92	45·96	+ 0·04	76. 30. 38·56	39·70	+ 1·14
18. 0. 3. 42·4	L	9. 49. 29·47	29·60	+ 0·13	76. 49. 53·19	54·30	+ 1·11
20. 0. 3. 15·4	WL	9. 56. 55·57	55·40	− 0·17	77. 29. 1·02	0·80	− 0·22
21. 0. 3. 1·0	P	....	...	...	77. 48. 50·67	52·20	+ 1·55
31. 0. 0. 15·5	RP	10. 37. 17·26	17·29	+ 0·03	81. 17. 16·28	17·50	+ 1·22
31. 23. 59. 57·2	AD	10. 40. 55·24	55·29	+ 0·05	81. 38. 59·05	59·80	+ 0·75
Sept. 3. 23. 58. 59·7	P	10. 51. 47·47	47·52	+ 0·05	82. 44. 54·09	53·70	− 0·39
5. 23. 58. 20·2	C	10. 59. 0·98	1·02	+ 0·04	83. 29. 23·84	25·20	+ 1·36
6. 23. 57. 59·9	AD	11. 2. 37·19	37·42	+ 0·23	83. 51. 56·47	50·70	− 5·77
8. 23. 57. 19·4	P	11. 9. 49·36	49·62	+ 0·26	84. 36. 58·16	59·20	+ 1·04
12. 23. 55. 55·7	T	11. 24. 11·95	12·13	+ 0·18	86. 8. 17·84	17·60	− 0·24
13. 23. 55. 34·6	C	11. 27. 47·35	47·48	+ 0·13	86. 31. 16·83	18·10	+ 1·27
14. 23. 55. 13·4	AD	11. 31. 22·64	22·76	+ 0·12	86. 54. 19·85	22·40	+ 2·55
15. 23. 54. 52·1	RP	11. 34. 57·84	58·01	+ 0·17	87. 17. 29·93	30·20	+ 0·27
16. 23. 54. 31·0	WL	11. 38. 33·20	33·24	+ 0·04	87. 40. 38·78	41·10	+ 2·32
17. 23. 54. 9·8	C	11. 42. 8·48	8·48	0·00	88. 3. 55·32	54·90	− 0·42
19. 23. 53. 27·3	P	11. 49. 19·01	19·09	+ 0·08	88. 50. 29·23	29·90	+ 0·67
26. 23. 51. 2·5	C	12. 14. 29·72	29·79	+ 0·07	91. 34. 13·24	16·30	+ 3·06
29. 23. 50. 3·3	P	12. 25. 20·01	20·03	+ 0·02	92. 44. 25·70	26·70	+ 1·00
Oct. 5. 23. 48. 12·5	AD	12. 47. 8·17	8·17	0·00	95. 3. 52·49	52·60	+ 0·11
6. 23. 47. 54·9	G	12. 50. 47·28	47·39	+ 0·11	....	...	...
11. 23. 46. 35·0	C	13. 9. 9·76	9·75	− 0·01	....	...	...
12. 23. 46. 20·2	L	13. 12. 51·47	51·61	+ 0·14	97. 43. 26·93	29·10	+ 2·17
15. 23. 45. 39·6	C	13. 24. 0·42	0·39	− 0·03	98. 50. 21·65	23·70	+ 2·05
24. 23. 44. 10·6	P	13. 58. 0·19	0·35	+ 0·16	102. 3. 42·56	44·20	+ 1·64
Nov. 7. 23. 43. 50·5	C	14. 52. 52·70	52·79	+ 0·09	106. 32. 59·35	60·30	+ 0·95
11. 23. 44. 14·8	P	15. 9. 2·44	2·62	+ 0·18	107. 40. 37·28	38·70	+ 1·42
14. 23. 44. 41·6	T	15. 21. 18·91	18·89	− 0·02	108. 28. 9·37	11·10	+ 1·73
17. 23. 45. 15·5	G	15. 33. 42·63	42·86	+ 0·23	109. 12. 45·76	48·50	+ 2·74
22. 23. 46. 29·5	L	15. 54. 39·60	39·67	+ 0·07	110. 20. 12·93	13·50	+ 0·57
Dec. 9. 23. 52. 54·0	G	17. 8. 6·72	6·68	− 0·04	112. 55. 15·15	17·80	+ 2·65
12. 23. 54. 17·6	C	17. 21. 20·10	20·07	− 0·03	113. 9. 34·34	35·70	+ 1·36
13. 23. 54. 45·9	P	17. 25. 45·10	45·22	+ 0·12	113. 13. 23·79	26·70	+ 2·91
16. 23. 56. 13·2	WL	17. 39. 2·28	2·34	+ 0·06	113. 22. 12·92	12·80	− 0·12
22. 23. 59. 12·3	L	18. 5. 41·22	41·32	+ 0·10	113. 27. 1·91	5·20	+ 3·29

RIGHT ASCENSIONS and NORTH POLAR DISTANCES of the CENTER of the MOON.

Mean Solar Time of Transit of Center.	Observer.	R.A. from Observation.	Seconds of R.A. in Nautical Almanac.	Apparent Error of Nautical Almanac in R.A.	N.P.D. from Observation.	Seconds of N.P.D. in Nautical Almanac.	Apparent Error of Nautical Almanac in N.P.D.
1875. d h m s		h m s	s	s	° ′ ″	″	″
Jan. 1. 19. 45. 37·5	E	14. 31. 47·35	47·84	+ 0·49	106. 32. 6·69	10·90	+ 4·21
13. 4. 59. 43·7	C	0. 30. 46·69	47·09	+ 0·40	87. 59. 52·39	50·10	− 2·29
15. 6. 37. 2·6	L	2. 16. 14·75	15·29	+ 0·54	74. 56. 61·45	57·20	− 4·25
18. 9. 29. 19·4	S	5. 20. 49·47	50·06	+ 0·59	62. 30. 14·70	14·80	+ 0·10
20. 11. 33. 53·7	L	7. 33. 37·36	38·23	+ 0·87	63. 12. 58·80	62·40	+ 3·60
21. 12. 31. 48·8	C	8. 35. 38·58	39·34	+ 0·76	66. 19. 45·00	49·70	+ 4·70
30. 19. 9. 0·2	AD	15. 49. 24·16	24·55	+ 0·39	113. 24. 36·65	38·50	+ 1·85
Feb. 15. 8. 22. 19·7	C	6. 4. 2·41	3·11	+ 0·70	61. 41. 3·33	2·50	− 0·83
18. 11. 15. 4·7	G	9. 9. 5·36	6·02	+ 0·66	68. 44. 18·49	23·60	+ 5·11
21. 13. 32. 44·4	AD	11. 38. 57·42	58·02	+ 0·60	85. 21. 49·65	52·30	+ 2·65
22. 14. 15. 37·9	J	12. 23. 54·62	55·15	+ 0·53	91. 24. 38·58	42·80	+ 4·22
Mar. 14. 6. 16. 41·4	W	5. 44. 30·37	31·00	+ 0·63	61. 41. 35·80	35·60	− 0·20
15. 7. 17. 33·5	L	6. 49. 28·99	29·71	+ 0·72	61. 48. 5·28	6·10	+ 0·82
17. 9. 10. 14·2	AD	....	...	...	67. 11. 57·53	60·50	+ 2·97
18. 10. 0. 9·4	L	9. 44. 20·65	21·31	+ 0·66	71. 48. 42·70	47·40	+ 4·70
19. 10. 46. 6·7	G	10. 34. 22·95	23·34	+ 0·39	....	....	...
20. 11. 29. 4·2	C	11. 21. 23·84	24·45	+ 0·61	83. 3. 20·87	26·40	+ 5·53
21. 12. 10. 6·9	AD	12. 6. 29·84	30·34	+ 0·50	89. 5. 17·98	23·70	+ 5·72
22. 12. 50. 20·5	L	12. 50. 46·58	47·15	+ 0·57	95. 4. 10·60	13·10	+ 2·50
Apr. 12. 6. 10. 45·4	L	7. 32. 53·48	54·33	+ 0·85	62. 54. 32·64	34·00	+ 1·36
13. 7. 6. 55·0	AD	8. 33. 8·82	9·67	+ 0·85	65. 58. 19·53	21·90	+ 2·37
14. 7. 58. 7·6	T	9. 28. 26·42	26·96	+ 0·54	70. 16. 54·51	56·70	+ 2·19
15. 8. 44. 51·7	C	10. 19. 14·75	15·36	+ 0·61	75. 26. 36·51	41·90	+ 5·39
16. 9. 28. 9·2	G	11. 6. 35·92	36·38	+ 0·46	80. 7. 42·48	47·20	+ 4·72
17. 10. 9. 11·3	AD	11. 51. 41·30	41·70	+ 0·40	87. 4. 5·12	7·90	+ 2·78
18. 10. 49. 8·6	T	12. 35. 41·77	42·01	+ 0·24	93. 2. 14·55	14·20	− 0·35
19. 11. 29. 6·6	L	13. 19. 42·80	43·38	+ 0·58	98. 49. 53·21	58·20	+ 4·99
20. 12. 10. 5·8	C	14. 4. 45·32	45·71	+ 0·39	104. 15. 27·71	31·10	+ 3·39
23. 14. 26. 25·3	L	16. 33. 16·87	17·28	+ 0·41	116. 13. 23·45	26·40	+ 2·95
24. 15. 17. 3·7	AD	....	...	...	118. 3. 0·27	3·90	+ 3·63
25. 16. 9. 25·0	C	18. 24. 26·59	27·18	+ 0·59	118. 29. 13·11	16·50	+ 3·39
May 11. 5. 53. 36·7	T	9. 10. 2·09	2·75	+ 0·66	68. 47. 0·80	4·20	+ 3·40
12. 6. 42. 36·9	L	10. 3. 6·89	7·54	+ 0·65	73. 47. 0·60	6·00	+ 5·40
13. 7. 27. 18·6	T	10. 51. 52·45	52·85	+ 0·40	79. 22. 35·91	38·90	+ 2·99
14. 8. 9. 1·8	P	11. 37. 39·03	39·23	+ 0·20	85. 15. 49·51	52·80	+ 3·29
15. 8. 49. 6·1	AD	12. 21. 46·54	46·91	+ 0·37	91. 12. 58·06	63·70	+ 5·64
16. 9. 28. 46·1	T	13. 5. 29·62	30·18	+ 0·56	97. 2. 37·56	43·40	+ 5·84
17. 10. 9. 8·9	L	13. 49. 55·56	55·95	+ 0·39	102. 33. 54·55	60·60	+ 6·05
18. 10. 51. 11·6	C	14. 36. 1·79	2·37	+ 0·58	107. 35. 27·71	31·80	+ 4·09
19. 11. 35. 40·3	AD	15. 24. 34·30	34·77	+ 0·47	111. 54. 39·53	42·80	+ 3·27
21. 13. 12. 59·8	G	17. 10. 2·91	3·36	+ 0·45	117. 31. 32·98	33·50	+ 0·52
22. 14. 4. 59·2	C	18. 6. 7·38	7·95	+ 0·57	118. 24. 12·75	15·30	+ 2·55
24. 15. 49. 49·8	L	19. 59. 8·30	8·83	+ 0·53	115. 47. 6·02	8·20	+ 2·18
25. 16. 40. 20·8	C	20. 53. 44·21	44·92	+ 0·71	112. 23. 19·62	18·90	− 0·72
26. 17. 28. 56·0	AD	21. 46. 23·91	24·67	+ 0·76	107. 48. 19·88	17·90	− 1·98
29. 19. 48. 42·3	C	0. 18. 22·86	23·54	+ 0·68	89. 8. 12·07	7·00	− 5·07
June 10. 6. 6. 40·2	C	11. 21. 24·45	25·13	+ 0·68	83. 20. 31·51	37·10	+ 5·59
11. 6. 47. 47·2	P	12. 6. 34·70	35·31	+ 0·61	89. 21. 53·69	58·00	+ 4·31
12. 7. 27. 48·4	T	....	....	...	95. 16. 47·76	52·60	+ 4·84
15. 9. 33. 2·7	AD	15. 8. 3·67	4·24	+ 0·57	110. 38. 11·30	15·80	+ 4·50
16. 10. 19. 27·6	T	15. 58. 32·75	33·41	+ 0·66	114. 19. 18·28	22·60	+ 4·32
18. 12. 0. 33·1	C	17. 47. 47·80	48·11	+ 0·31	118. 13. 13·97	16·80	+ 2·83
21. 14. 37. 29·9	L	20. 37. 0·21	0·82	+ 0·61	....	....	...
23. 16. 13. 31·6	T	22. 21. 10·83	11·65	+ 0·82	103. 52. 42·52	40·50	− 2·02
24. 16. 59. 3·1	L	23. 10. 46·31	47·17	+ 0·86	97. 52. 6·33	2·80	− 3·53
July 12. 7. 29. 15·6	T	14. 50. 23·23	23·72	+ 0·49	109. 16. 43·60	47·30	+ 3·70
21. 14. 59. 55·0	WL	22. 57. 45·74	46·61	+ 0·87	....	....	...
24. 17. 15. 10·9	L	1. 25. 13·59	14·52	+ 0·93	79. 50. 63·51	59·80	− 3·71

RIGHT ASCENSIONS and NORTH POLAR DISTANCES of the CENTER of the MOON—*concluded.*

Mean Solar Time of Transit of Center.	Observer.	R.A. from Observation.	Seconds of R.A. in Nautical Almanac.	Apparent Error of Nautical Almanac in R.A.	N.P.D. from Observation.	Seconds of N.P.D. in Nautical Almanac.	Apparent Error of Nautical Almanac in N.P.D.
1875. d h m s		h m s	s	s	° ′ ″	″	″
July 25. 18. 5. 4·6	C	2. 19. 11·96	12·79	+ 0·83	73. 38. 57·55	53·20	− 4·35
26. 18. 59. 11·9	AD	3. 17. 24·78	25·64	+ 0·86	68. 16. 37·10	33·00	− 4·10
Aug. 13. 9. 31. 47·6	T	18. 59. 25·38	25·80	+ 0·42	117. 53. 12·22	15·30	+ 3·08
14. 10. 24. 56·3	P	19. 56. 39·18	39·60	+ 0·42	115. 45. 8·92	6·50	− 2·42
15. 11. 16. 36·3	AD	20. 52. 24·28	24·85	+ 0·57	112. 11. 27·74	25·60	− 2·14
16. 12. 6. 12·4	RP	21. 46. 5·11	5·78	+ 0·67	107. 23. 59·60	54·30	− 5·30
18. 13. 40. 7·4	L	23. 28. 8·63	9·55	+ 0·92	95. 12. 49·88	47·70	− 2·18
20. 15. 14. 1·2	T	1. 9. 10·81	11·79	+ 0·98	81. 39. 50·60	45·40	− 5·20
21. 16. 2. 10·9	WC	2. 2. 25·13	26·12	+ 0·99	75. 14. 37·99	34·70	− 3·29
22. 16. 54. 47·5	AD	2. 59. 6·89	7·84	+ 0·95	69. 35. 10·87	7·10	− 3·77
Sept. 6. 4. 48. 22·0	C	15. 49. 50·42	50·82	+ 0·40	....	...	...
7. 5. 37. 17·7	AD	16. 42. 50·64	51·00	+ 0·36	117. 2. 13·55	16·90	+ 3·35
8. 6. 28. 30·3	WL	17. 38. 8·28	8·45	+ 0·17	118. 28. 2·51	3·50	+ 0·99
9. 7. 21. 10·1	P	18. 34. 53·28	53·71	+ 0·43	118. 28. 8·95	8·20	− 0·75
10. 8. 14. 6·6	C	19. 31. 54·97	55·34	+ 0·37	116. 58. 25·80	25·70	− 0·10
14. 11. 32. 38·2	C	23. 6. 45·58	46·11	+ 0·53	98. 0. 34·61	31·70	− 2·91
15. 12. 19. 33·6	AD	23. 57. 45·15	45·91	+ 0·76	91. 10. 56·86	51·30	− 5·56
17. 14. 0. 40·7	WL	1. 43. 5·34	6·54	+ 1·20	77. 22. 28·11	22·40	− 5·71
18. 14. 49. 26·7	C	2. 39. 52·45	53·57	+ 1·12	71. 14. 40·37	33·70	− 6·67
19. 15. 46. 0·9	L	3. 40. 32·55	33·68	+ 1·13	66. 14. 62·89	58·90	− 3·99
Oct. 6. 5. 11. 33·5	AD	18. 11. 22·32	22·59	+ 0·27	118. 41. 15·76	19·50	+ 3·74
8. 6. 55. 19·2	C	20. 3. 18·22	18·42	+ 0·20	115. 31. 59·60	59·70	+ 0·10
9. 7. 45. 30·7	L	20. 57. 34·53	35·08	+ 0·55	111. 52. 62·51	59·90	− 2·61
11. 9. 21. 27·8	P	22. 41. 40·42	40·90	+ 0·48	101. 11. 24·39	21·60	− 2·79
12. 10. 8. 20·2	C	23. 32. 37·14	37·60	+ 0·46	94. 35. 61·45	59·90	− 1·55
13. 10. 55. 50·3	L	0. 24. 11·52	12·19	+ 0·67	87. 34. 36·15	31·20	− 4·95
16. 13. 34. 42·6	C	3. 15. 19·62	20·66	+ 1·04	68. 7. 33·02	30·10	− 2·92
17. 14. 35. 48·2	J	4. 20. 31·78	32·84	+ 1·06	63. 54. 60·46	56·00	− 4·46
20. 17. 45. 31·7	WC	7. 42. 36·16	37·55	+ 1·39	63. 28. 9·29	13·40	+ 4·11
21. 18. 42. 18·5	AD	8. 43. 28·87	29·99	+ 1·12	67. 3. 45·20	50·20	+ 5·00
Nov. 8. 7. 56. 57·6	C	23. 7. 19·94	20·39	+ 0·45	97. 50. 52·68	48·40	− 4·28
9. 8. 42. 52·7	L	23. 57. 19·15	19·79	+ 0·64	....	...	...
11. 10. 21. 6·9	L	1. 43. 42·62	43·21	+ 0·59	77. 17. 22·33	17·30	− 5·03
14. 13. 21. 43·5	AD	4. 56. 38·48	39·30	+ 0·82	62. 32. 14·86	14·40	− 0·46
16. 15. 34. 14·4	C	7. 17. 24·30	25·35	+ 1·05	62. 37. 59·05	63·70	+ 4·65
17. 16. 34. 58·3	AD	8. 22. 14·68	15·75	+ 1·07	65. 46. 5·48	8·20	+ 2·72
19. 18. 19. 10·1	RP	10. 14. 36·73	37·78	+ 1·05	75. 48. 21·10	26·30	+ 5·20
21. 19. 46. 40·0	AD	11. 50. 14·10	15·04	+ 0·94	87. 56. 28·15	36·80	+ 8·65
Dec. 5. 5. 50. 16·4	C	22. 46. 44·90	45·33	+ 0·43	100. 12. 26·31	24·00	− 2·31
7. 7. 19. 8·8	L	0. 23. 45·07	45·60	+ 0·53	87. 21. 16·39	9·00	− 7·39
12. 12. 4. 7·6	T	5. 29. 13·45	14·23	+ 0·78	61. 49. 12·93	12·40	− 0·53
13. 13. 12. 34·5	C	6. 41. 48·16	49·09	+ 0·93	61. 52. 44·36	46·60	+ 2·24
19. 18. 26. 20·2	T	....	...	...	92. 16. 10·73	18·60	+ 7·87
20. 19. 7. 34·2	G	13. 5. 22·07	22·93	+ 0·86	98. 15. 22·11	27·80	+ 5·69
22. 20. 32. 15·8	L	14. 38. 10·70	11·57	+ 0·87	108. 44. 16·21	20·70	+ 4·49

RIGHT ASCENSIONS and NORTH POLAR DISTANCES of the CENTER of MERCURY.

Feb.	1. 1. 3. 19·2	L	21. 48. 37·98	38·15	+ 0·17	104. 46. 12·42	11·50	− 0·92
May	17. 0. 36. 6·8	L	4. 15. 19·39	19·71	+ 0·32	67. 18. 36·42	38·20	+ 1·78
	31. 1. 31. 10·2	AD	6. 5. 43·63	43·93	+ 0·30	64. 23. 23·38	23·50	+ 0·12
June	3. 1. 37. 51·7	P	6. 24. 15·85	15·92	+ 0·07	64. 40. 3·35	4·80	+ 1·45
	11. 1. 44. 26·3	P	7. 2. 23·98	24·27	+ 0·29	....	...	...

RIGHT ASCENSIONS and NORTH POLAR DISTANCES of the CENTER of MERCURY—*concluded.*

Mean Solar Time of Transit of Center.	Observer.	R.A. from Observation.	Seconds of R.A. in Nautical Almanac.	Apparent Error of Nautical Almanac in R.A.	N.P.D. from Observation.	Seconds of N.P.D. in Nautical Almanac.	Apparent Error of Nautical Almanac in N.P.D.
1875. d h m s		h m s	s	s	° ′ ″	″	″
July 27. 22. 42. 47·6	T	....	...	...	69. 13. 45·72	44·80	− 0·92
30. 22. 45. 53·9	AD	7. 20. 30·23	30·22	− 0·01	68. 54. 27·89	28·00	+ 0·11
Aug. 13. 23. 33. 58·3	P	9. 3. 54·32	54·46	+ 0·14	....	...	...
15. 23. 42. 31·8	RP	9. 20. 22·31	22·33	+ 0·02	72. 44. 14·94	15·80	+ 0·86
16. 23. 46. 43·7	T	9. 28. 31·50	31·55	+ 0·05	73. 18. 59·02	58·60	− 0·42
Sept. 7. 0. 50. 11·1	AD	11. 54. 56·93	56·96	+ 0·03	88. 49. 9·03	10·10	+ 1·07
Nov. 14. 22. 31. 29·9	T	14. 7. 55·21	55·05	− 0·16	100. 27. 4·74	4·30	− 0·44
18. 22. 33. 16·6	W	....	...	...	102. 8. 29·89	29·00	− 0·89

RIGHT ASCENSIONS and NORTH POLAR DISTANCES of the CENTER of VENUS.

Jan. 18. 21. 11. 21·2	AD	17. 4. 46·55	46·48	− 0·07	107. 47. 48·13	50·30	+ 2·17
20. 21. 8. 58·9	C	17. 10. 17·05	16·93	− 0·12	107. 58. 3·45	6·10	+ 2·65
21. 21. 7. 55·2	G	17. 13. 9·74	9·67	− 0·07	108. 3. 24·80	25·50	+ 0·70
31. 21. 1. 16·6	J	17. 45. 55·57	55·53	− 0·04	108. 56. 39·88	41·10	+ 1·22
Feb. 21. 21. 3. 23·7	J	19. 10. 50·70	50·78	+ 0·08	109. 32. 25·36	26·90	+ 1·54
Mar. 4. 21. 9. 12·7	J	20. 0. 2·72	2·68	− 0·04	108. 36. 5·66	7·20	+ 1·54
9. 21. 12. 16·7	G	20. 22. 49·99	50·12	+ 0·13	107. 50. 28·57	29·20	+ 0·63
22. 21. 20. 26·1	W	21. 22. 15·93	15·81	− 0·12	104. 54. 43·65	43·90	+ 0·25
24. 21. 21. 38·7	AD	21. 31. 21·88	22·05	+ 0·17	104. 20. 47·43	48·10	+ 0·67
26. 21. 22. 50·6	T	21. 40. 27·10	27·10	0·00	103. 45. 8·79	10·20	+ 1·41
April 5. 21. 28. 27·3	J	22. 25. 30·23	30·19	− 0·04	100. 23. 47·54	47·40	− 0·14
7. 21. 29. 29·7	L	....	...	...	99. 39. 25·28	23·00	− 2·28
13. 21. 32. 27·3	T	23. 1. 3·37	3·43	+ 0·06	97. 19. 18·87	18·70	− 0·17
15. 21. 33. 23·7	G	23. 9. 52·95	53·06	+ 0·11	96. 30. 36·05	36·00	− 0·05
16. 21. 33. 51·5	AD	23. 14. 17·47	17·43	− 0·04	96. 5. 54·93	54·60	− 0·33
18. 21. 34. 46·1	L	23. 23. 5·28	5·33	+ 0·05	95. 15. 55·55	54·90	− 0·65
19. 21. 35. 13·2	C	23. 27. 28·97	28·93	− 0·04	94. 50. 38·76	37·50	− 1·26
22. 21. 36. 32·7	L	23. 40. 38·38	38·60	+ 0·22	93. 33. 45·50	43·30	− 2·20
23. 21. 36. 59·2	T	23. 45. 1·51	1·51	0·00	93. 7. 45·83	46·60	+ 0·77
29. 21. 39. 35·5	T	....	...	...	90. 29. 33·62	34·60	+ 0·98
May 2. 21. 40. 53·7	C	0. 24. 25·71	25·98	+ 0·27	89. 9. 21·36	20·40	− 0·96
5. 21. 42. 13·6	AD	0. 37. 35·46	35·48	+ 0·02	87. 48. 44·68	44·90	+ 0·22
10. 21. 44. 31·0	T	0. 59. 36·04	36·01	− 0·03	85. 34. 26·92	27·80	+ 0·88
11. 21. 44. 59·5	L	1. 4. 0·82	1·09	+ 0·27	85. 7. 43·26	42·70	− 0·56
16. 21. 47. 28·3	L	1. 26. 13·13	13·21	+ 0·08	82. 55. 2·54	4·00	+ 1·46
20. 21. 49. 37·5	G	1. 44. 8·92	9·00	+ 0·08	81. 10. 57·84	56·80	− 1·04
23. 21. 51. 21·8	T	1. 57. 43·16	43·09	− 0·07	79. 54. 27·95	28·90	+ 0·95
31. 21. 56. 36·0	T	2. 34. 30·68	30·70	+ 0·02	76. 39. 55·08	55·70	+ 0·62
June 1. 21. 57. 19·5	L	....	...	...	76. 16. 46·89	46·60	− 0·29
2. 21. 58. 3·9	P	2. 43. 51·98	51·98	0·00	75. 53. 54·53	55·50	+ 0·97
3. 21. 58. 49·4	C	....	...	...	75. 31. 22·67	23·20	+ 0·53
8. 22. 2. 52·3	G	3. 12. 20·53	20·53	0·00	73. 43. 45·17	46·90	+ 1·73
10. 22. 4. 36·9	P	3. 21. 58·49	58·61	+ 0·12	73. 3. 20·44	20·00	− 0·44
18. 22. 12. 20·1	G	4. 1. 15·43	15·50	+ 0·07	70. 38. 36·63	36·60	− 0·03
23. 22. 17. 45·3	WL	4. 26. 24·31	24·56	+ 0·25	69. 23. 45·85	47·80	+ 1·95
24. 22. 18. 53·6	G	4. 31. 29·34	29·55	+ 0·21	69. 10. 24·65	25·50	+ 0·85
July 1. 22. 27. 17·8	P	5. 7. 31·31	31·42	+ 0·11	67. 52. 48·12	49·10	+ 0·98
5. 22. 32. 24·5	C	5. 28. 24·62	24·85	+ 0·23	67. 21. 49·41	47·20	− 2·21
12. 22. 41. 42·4	L	6. 5. 20·01	20·07	+ 0·06	66. 52. 16·55	17·20	+ 0·65
27. 23. 1. 59·7	T	7. 24. 49·02	48·87	− 0·15	67. 39. 38·64	38·70	+ 0·06
30. 23. 5. 55·0	AD	7. 40. 34·58	34·73	+ 0·15	68. 7. 9·24	8·10	− 1·14

RIGHT ASCENSIONS and NORTH POLAR DISTANCES of the CENTER of VENUS—*concluded.*

Mean Solar Time of Transit of Center.	Observer.	R.A. from Observation.	Seconds of R.A. in Nautical Almanac.	Apparent Error of Nautical Almanac in R.A.	N.P.D. from Observation.	Seconds of N.P.D. in Nautical Almanac.	Apparent Error of Nautical Almanac in N.P.D.
1875. d h m s		h m s	s	s	° ′ ″	″	″
Aug. 9. 23. 18. 13·4	G	8. 32. 20·55	20·55	0·00	70. 19. 24·59	26·00	+ 1·41
13. 23. 22. 43·5	P	8. 52. 37·65	37·76	+ 0·11	71. 28. 38·70	39·00	+ 0·30
15. 23. 24. 52·7	RP	9. 2. 40·28	40·38	+ 0·10	72. 6. 25·97	27·60	+ 1·63
16. 23. 25. 55·8	T	9. 7. 40·14	40·16	+ 0·02	72. 26. 6·62	7·80	+ 1·18
22. 23. 31. 52·9	G	9. 37. 17·56	17·46	− 0·10	74. 34. 12·64	12·90	+ 0·26
30. 23. 38. 53·8	RP	10. 15. 52·08	52·17	+ 0·09	77. 48. 43·19	43·00	− 0·19
Sept. 3. 23. 42. 2·8	P	10. 34. 47·73	47·85	+ 0·12	79. 34. 24·55	25·80	+ 1·25
5. 23. 43. 32·4	C	10. 44. 10·69	10·88	+ 0·19	80. 29. 2·09	3·80	+ 1·71
6. 23. 44. 16·1	AD	10. 48. 51·10	51·29	+ 0·19	80. 56. 45·00	46·70	+ 1·70
Oct. 12. 0. 7. 0·5	C	13. 29. 38·59	38·56	− 0·03	98. 18. 26·11	27·20	+ 1·09
Nov. 15. 0. 41. 2·7	T	16. 17. 49·24	49·27	+ 0·03	111. 37. 52·84	51·00	− 1·84
18. 0. 45. 7·4	G	....	...	...	112. 20. 59·26	61·00	+ 1·74

RIGHT ASCENSIONS and NORTH POLAR DISTANCES of the CENTER of MARS.

Jan. 29. 18. 46. 15·1	M	15. 22. 38·76	38·82	+ 0·06	107. 28. 8·81	9·70	+ 0·89
Mar. 24. 17. 9. 25·2	L	17. 18. 26·95	27·10	+ 0·15	112. 47. 5·99	6·60	+ 0·61
April 24. 15. 55. 2·5	AD	18. 6. 5·20	5·48	+ 0·28	114. 4. 44·62	49·50	+ 4·88
May 21. 14. 22. 37·0	G	18. 19. 51·52	51·59	+ 0·07	115. 25. 53·50	52·60	− 0·90
22. 14. 18. 29·5	C	18. 19. 39·86	40·10	+ 0·24	....	...	...
24. 14. 10. 4·9	T	18. 19. 6·98	7·13	+ 0·15	115. 37. 44·44	48·40	+ 3·96
26. 14. 1. 26·9	J	18. 18. 20·56	20·75	+ 0·19	115. 45. 59·37	62·20	+ 2·83
31. 13. 38. 53·2	AD	18. 15. 26·12	26·31	+ 0·19	116. 7. 16·16	18·30	+ 2·14
June 1. 13. 34. 12·8	T	....	...	...	116. 11. 36·99	37·80	+ 0·81
3. 13. 24. 42·1	P	18. 13. 2·35	2·63	+ 0·28	116. 20. 17·22	17·90	+ 0·68
8. 13. 0. 5·5	T	18. 8. 4·56	4·51	− 0·05	116. 41. 38·17	41·70	+ 3·53
11. 12. 44. 49·2	P	18. 4. 35·38	35·53	+ 0·15	116. 53. 57·22	59·50	+ 2·28
12. 12. 39. 39·7	T	18. 3. 21·59	21·67	+ 0·08	116. 57. 54·91	56·90	+ 1·99
16. 12. 18. 44·4	T	17. 58. 9·12	9·22	+ 0·10	117. 12. 46·66	50·20	+ 3·54
19. 12. 2. 49·9	G	17. 54. 1·66	1·84	+ 0·18	117. 22. 46·13	48·70	+ 2·57
24. 11. 36. 9·6	WL	17. 46. 59·77	59·79	+ 0·02	....	...	...
25. 11. 30. 49·7	G	17. 45. 35·62	35·71	+ 0·09	117. 38. 57·69	61·10	+ 3·41
26. 11. 25. 30·5	W	17. 44. 12·05	12·22	+ 0·17	117. 41. 10·32	11·90	+ 0·58
July 1. 10. 59. 10·6	AD	17. 37. 30·66	30·82	+ 0·16	117. 49. 47·25	48·80	+ 1·55
6. 10. 33. 36·3	C	17. 31. 34·95	35·08	+ 0·13	117. 54. (62·01)	53·30	(− 8·71)
12. 10. 4. 25·7	T	17. 25. 58·88	58·96	+ 0·08	117. 57. 8·26	11·00	+ 2·74
28. 8. 56. 53·6	T	17. 21. 20·56	20·72	+ 0·16	117. 52. 22·54	23·60	+ 1·06
29. 8. 53. 11·8	L	17. 21. 34·75	35·02	+ 0·27	117. 51. 51·49	52·50	+ 1·01
31. 8. 45. 59·7	AD	17. 22. 14·58	14·78	+ 0·20	117. 50. 49·66	49·10	− 0·56
Aug. 3. 8. 35. 38·9	P	17. 23. 41·82	42·00	+ 0·18	117. 49. 7·77	11·50	+ 3·73
4. 8. 32. 19·2	T	17. 24. 18·07	18·32	+ 0·25	117. 48. 35·60	38·30	+ 2·70
6. 8. 25. 50·4	AD	17. 25. 41·31	41·49	+ 0·18	117. 47. 27·84	30·80	+ 2·96
7. 8. 22. 41·1	RP	17. 26. 28·11	28·24	+ 0·13	117. 46. 53·82	56·20	+ 2·38
16. 7. 56. 41·9	RP	17. 35. 53·62	53·74	+ 0·12	117. 40. 59·42	60·90	+ 1·48
23. 7. 39. 9·7	G	....	...	...	117. 34. 30·70	32·70	+ 2·00
25. 7. 34. 31·6	T	17. 49. 8·62	8·89	+ 0·27	117. 32. 9·67	12·90	+ 3·23
30. 7. 23. 37·5	C	17. 57. 55·57	55·78	+ 0·21	117. 25. 6·72	8·40	+ 1·68
31. 7. 21. 33·4	RP	17. 59. 47·65	47·78	+ 0·13	117. 23. 26·74	28·80	+ 2·06
Sept. 3. 7. 15. 33·2	W	....	...	...	117. 17. 53·99	56·20	+ 2·21
4. 7. 13. 36·9	P	18. 7. 36·07	36·23	+ 0·16	117. 15. 52·59	53·30	+ 0·71
6. 7. 9. 50·2	C	18. 11. 41·81	42·00	+ 0·19	117. 11. 27·27	28·10	+ 0·83

RIGHT ASCENSIONS and NORTH POLAR DISTANCES of the CENTER of MARS—*concluded.*

Mean Solar Time of Observation.	Observer.	R.A. from Observation.	Seconds of R.A. in Nautical Almanac.	Apparent Error of Nautical Almanac in R.A.	N.P.D. from Observation.	Seconds of N.P.D. in Nautical Almanac.	Apparent Error of Nautical Almanac in N.P.D.
1875. d h m s		h m s	s	s	° ′ ″	″	″
Sept. 8. 7. 6. 10·6	WL	18. 15. 54·76	54·88	+ 0·12	117. 6. 37·28	35·20	− 2·08
9. 7. 4. 23·3	P	18. 18. 3·75	3·87	+ 0·12	117. 3. 57·93	57·90	− 0·03
14. 6. 55. 50·2	C	18. 29. 12·01	12·25	+ 0·24	116. 48. 52·66	55·10	+ 2·44
15. 6. 54. 12·1	AD	18. 31. 30·12	30·28	+ 0·16	116. 45. 28·25	29·80	+ 1·55
17. 6. 50. 59·5	WL	18. 36. 10·15	10·27	+ 0·12	116. 38. 12·88	13·10	+ 0·22
18. 6. 49. 24·9	C	18. 38. 31·86	32·17	+ 0·31	116. 34. 19·19	21·40	+ 2·21
27. 6. 36. 6·4	C	19. 0. 40·16	40·38	+ 0·22	115. 52. 26·15	28·10	+ 1·95
29. 6. 33. 20·2	AD	19. 5. 46·61	46·67	+ 0·06	115. 41. 17·72	18·90	+ 1·18
Oct. 6. 6. 24. 3·4	AD	19. 24. 4·12	4·22	+ 0·10	114. 56. 37·29	37·70	+ 0·41
8. 6. 21. 30·4	C	19. 29. 23·83	23·96	+ 0·13	114. 42. 13·35	12·80	− 0·55
16. 6. 11. 38·3	C	19. 51. 2·54	2·66	+ 0·12	113. 37. 5·00	6·10	+ 1·10
21. 6. 5. 39·5	WL	20. 4. 45·53	45·88	+ 0·35	112. 50. 24·59	22·00	− 2·59
25. 6. 0. 57·3	P	20. 15. 48·76	48·85	+ 0·09	112. 9. 39·20	39·30	+ 0·10
Nov. 4. 5. 49. 20·8	C	20. 43. 35·91	35·91	0·00	110. 15. 15·01	16·50	+ 1·49
8. 5. 44. 42·0	C	20. 54. 43·46	43·61	+ 0·15	109. 24. 42·61	42·60	− 0·01
12. 5. 40. 4·1	P	21. 5. 50·17	50·24	+ 0·07	108. 31. 35·05	35·00	− 0·05
15. 5. 36. 33·8	T	21. 14. 8·99	9·02	+ 0·03	107. 50. 9·72	8·60	− 1·12
18. 5. 33. 2·3	G	21. 22. 26·54	26·55	+ 0·01	107. 7. 22·19	24·10	+ 1·91
29. 5. 19. 54·8	AD	21. 52. 38·99	39·05	+ 0·06	104. 20. 24·78	25·20	+ 0·42
Dec. 17. 4. 57. 37·3	WL	22. 41. 15·90	15·88	− 0·02	99. 19. 26·37	26·50	+ 0·13
22. 4. 51. 14·3	AD	22. 54. 34·65	34·72	+ 0·07	97. 51. 30·46	31·80	+ 1·34
23. 4. 49. 57·1	L	22. 57. 13·78	13·98	+ 0·20	97. 33. 45·81	47·00	+ 1·19

RIGHT ASCENSIONS and NORTH POLAR DISTANCES of CERES (1).

Mean Solar Time of Observation.	R.A. from Observation.	Seconds of R.A. in Nautical Almanac or Berliner Jahrbuch.	Apparent Error of Nautical Almanac or Berliner Jahrbuch in R.A.	N.P.D. from Observation.	Seconds of N.P.D. in Nautical Almanac or Berliner Jahrbuch.	Apparent Error of Nautical Almanac or Berliner Jahrbuch in N.P.D.
d h m s	h m s	s	s	° ′ ″	″	″
Jan. 5. 11. 14. 48·4 P	6. 24. 40·74	31·99	− 8·75	61. 17. 27·80	47·40	+19·60
6. 11. 9. 51·4 P	6. 23. 39·43	30·57	− 8·86	61. 13. 22·70	42·80	+20·10
13. 10. 44. 49·9	6. 16. 49·58	41·12	− 8·46	60. 47. 34·06	57·20	+23·14
15. 10. 35. 10·5	6. 14. 61·70	53·27	− 8·43	60. 41. 8·05	30·60	+22·55
20. 10. 11. 24·7	6. 10. 54·79	46·42	− 8·37	60. 26. 44·76	67·70	+22·94
21. 9. 57. 25·4 P	6. 10. 9·98	1·68	− 8·30	60. 24. 10·80	33·30	+22·50
22. 9. 52. 45·4 P	6. 9. 26·58	18·20	− 8·38	60. 21. 40·40	63·30	+22·90
22. 10. 2. 4·4	6. 9. 26·12	17·90	− 8·22	60. 21. 38·67	62·20	+23·53
28. 9. 34. 43·3	6. 5. 39·80	31·88	− 7·92	60. 8. 28·80	51·60	+22·80

RIGHT ASCENSIONS and NORTH POLAR DISTANCES of IRIS (7).

Mar. 5. 12. 15. 46·4 P	11. 18. 25·93	18·87	− 7·06	95. 1. 14·90	4·10	−10·80
9. 12. 5. 31·8	11. 14. 35·38	28·03	− 7·35	94. 37. 19·31	9·82	− 9·49
10. 12. 0. 38·7	11. 13. 37·96	30·65	− 7·31	94. 30. 63·16	57·74	− 5·42
23. 10. 48. 33·4 P	11. 1. 56·33	48·99	− 7·34	93. 6. 15·50	4·00	−11·50
26. 10. 34. 22·4 P	10. 59. 33·41	26·17	− 7·24	92. 46. 31·20	21·10	−10·10
27. 10. 29. 41·4 P	10. 58. 48·09	40·72	− 7·37	92. 39. 61·40	51·00	−10·40
Apr. 2. 10. 1. 59·4 P	10. 54. 40·34	....	....	92. 2. 11·00	...	...

The letter P signifies that the observation was made at the Observatory of Paris; the time given is Mean Solar Time of Greenwich.

RIGHT ASCENSIONS and NORTH POLAR DISTANCES of FLORA (8).

Mean Solar Time of Observation.	R.A. from Observation.	Seconds of R.A. in Berliner Jahrbuch.	Apparent Error of Berliner Jahrbuch in R.A.	N.P.D. from Observation.	Seconds of N.P.D. in Berliner Jahrbuch.	Apparent Error of Berliner Jahrbuch in N.P.D.
1875. d h m s	h m s	s	s	° ′ ″	″	″
Apr. 5. 12. 24. 57·4 P	13. 29. 52·12	45·59	− 6·53	88. 58. 57·20	18·30	− 38·90
12. 11. 59. 51·5	13. 22. 56·89	50·62	− 6·27	88. 15. 75·18	31·46	− 43·72
15. 11. 45. 6·9	13. 19. 59·57	53·04	− 6·53	87. 58. 95·41	55·33	− 40·08
17. 11. 35. 18·5	13. 17. 62·70	56·03	− 6·67	87. 48. 16·48	33·22	− 43·26
20. 11. 11. 20·4 P	13. 15. 10·91	4·32	− 6·59	87. 34. 47·10	11·10	− 36·00
23. 10. 56. 46·4 P	13. 12. 24·42	17·84	− 6·58	87. 21. 56·40	16·70	− 39·70
24. 10. 51. 56·4 P	13. 11. 30·33	23·83	− 6·50	87. 17. 57·60	19·50	− 38·10
27. 10. 37. 32·4 P	13. 8. 53·51	...	...	87. 7. 6·70	...	...
28. 10. 32. 46·4 P	13. 8. 2·74	...	...	87. 3. 55·30	...	...
29. 10. 28. 1·4 P	13. 7. 14·02	...	...	87. 0. 57·80	...	...
30. 10. 23. 17·4 P	13. 6. 25·45	...	...	86. 58. 8·50	...	...
May 4. 10. 4. 33·4 P	13. 3. 24·59	...	...	86. 47. 54·60	...	...

RIGHT ASCENSIONS and NORTH POLAR DISTANCES of METIS (9).

Sept. 10. 12. 54. 16·9	0. 12. 51·29	53·84	+ 2·55	98. 59. 32·77	14·82	− 17·95
17. 12. 11. 15·4 P	0. 6. 39·66	42·42	+ 2·76	99. 39. 28·60	10·40	− 18·20
27. 11. 22. 30·4 P	23. 57. 11·78	14·48	+ 2·70	100. 28. 32·10	15·10	− 17·00
Oct. 2. 11. 7. 31·9	23. 52. 32·98	35·73	+ 2·75	100. 47. 17·69	1·20	− 16·49
5. 10. 53. 5·4	23. 49. 53·76	56·38	+ 2·62	100. 55. 70·77	54·54	− 16·23
6. 10. 48. 18·2	23. 49. 2·36	4·99	+ 2·63	100. 58. 40·00	27·17	− 12·83
11. 10. 24. 38·6	23. 45. 1·68	4·47	+ 2·79	101. 7. 66·57	54·18	− 12·39

RIGHT ASCENSIONS and NORTH POLAR DISTANCES of VICTORIA (12).

Sept. 17. 12. 24. 12·4 P	0. 19. 38·21	50·07	+11·86	73. 37. 79·60	28·40	− 51·20
27. 11. 36. 28·4 P	0. 11. 11·74	23·69	+11·95	75. 9. 71·50	14·50	− 57·00
Oct. 5. 11. 7. 53·4	0. 4. 44·17	55·58	+11·41	76. 35. 103·61	43·27	− 60·34
6. 11. 3. 12·9	0. 3. 59·46	70·72	+11·26	76. 46. 117·83	55·54	− 62·29
11. 10. 40. 7·3	0. 0. 32·87	43·79	+10·92	77. 43. 75·16	14·51	− 60·65
21. 9. 46. 24·4 P	23. 55. 27·58	...	...	79. 33. 1·70	...	...
23. 9. 37. 51·4 P	23. 54. 46·24	...	...	79. 53. 16·00	...	...

RIGHT ASCENSIONS and NORTH POLAR DISTANCES of EGERIA (13).

Nov. 13. 11. 45. 3·4 P	3. 25. 6·77	6·11	− 0·66	66. 8. 40·40	51·00	+ 10·60
15. 11. 34. 45·4 P	3. 22. 40·17	39·48	− 0·69	66. 2. 12·40	21·90	+ 9·50
22. 10. 58. 42·4 P	3. 14. 7·29	6·61	− 0·68	65. 42. 25·50	36·60	+ 11·10
29. 10. 32. 23·0	3. 5. 58·51	57·93	− 0·58	65. 26. 43·29	51·21	+ 7·92

RIGHT ASCENSIONS and NORTH POLAR DISTANCES of EUNOMIA (15).

Jan. 27. 12. 46. 30·4 P	9. 23. 22·01	14·18	− 7·83	81. 59. 90·30	45·00	− 45·30
30. 12. 31. 41·4 P	9. 20. 20·66	12·84	− 7·82	81. 58. 78·80	32·40	− 46·40
Feb. 1. 12. 21. 47·4 P	9. 18. 18·34	10·36	− 7·98	81. 57. 63·40	17·80	− 45·60
4. 12. 6. 55·4 P	9. 15. 13·52	5·63	− 7·89	81. 54. 97·60	50·70	− 46·90
5. 12. 1. 58·4 P	9. 14. 12·08	4·08	− 8·00	81. 53. 99·70	53·10	− 46·60
22. 10. 38. 57·4 P	8. 57. 58·58	50·75	− 7·83	81. 30. 88·20	43·00	− 45·20
25. 10. 24. 44·4 P	8. 55. 33·16	25·43	− 7·73	...	...	...

The letter P signifies that the observation was made at the Observatory of Paris; the time given is Mean Solar Time of Greenwich.

RIGHT ASCENSIONS and NORTH POLAR DISTANCES of MELPOMONE (18).

Mean Solar Time of Observation.	R.A. from Observation.	Seconds of R.A. in Berliner Jahrbuch.	Apparent Error of Berliner Jahrbuch in R.A.	N.P.D. from Observation.	Seconds of N.P.D. in Berliner Jahrbuch.	Apparent Error of Berliner Jahrbuch in N.P.D.
1875. d h m s	h m s	s	s	° ′ ″	″	″
Feb. 4. 12. 36. 15·4 P	9. 44. 38·68	35·77	− 2·91	79. 10. 59·70	59·70	0·00
5. 12. 31. 21·4 P	9. 43. 40·32	37·24	− 3·08	79. 1. 53·00	54·10	+ 1·10
22. 11. 8. 9·4 P	9. 27. 15·28	12·03	− 3·25	76. 28. 13·10	15·50	+ 2·40
25. 10. 53. 44·4 P	9. 24. 38·54	35·12	− 3·42	76. 3. 2·10	4·20	+ 2·10
Mar. 5. 10. 16. 10·4 P	9. 18. 30·03	...	...	75. 1. 18·80	...	...

RIGHT ASCENSIONS and NORTH POLAR DISTANCES of LUTETIA (21).

Dec. 17. 10. 29. 15·4 P	4. 23. 9·07	12·32	+ 3·25	68. 55. 49·80	43·70	− 6·10
18. 10. 24. 24·4 P	4. 22. 13·84	17·03	+ 3·19	68. 56. 36·10	29·30	− 6·80
23. 10. 0. 30·4 P	4. 17. 58·35	...	...	68. 59. 54·50	...	...

RIGHT ASCENSIONS and NORTH POLAR DISTANCES of THEMIS (24).

Jan. 26. 12. 42. 57·4 P	9. 15. 52·85	52·74	− 0·11	72. 47. 32·60	34·20	+ 1·60
27. 12. 38. 14·4 P	9. 15. 4·60	4·50	− 0·10	72. 43. 52·70	53·70	+ 1·00
30. 12. 23. 59·4 P	9. 12. 37·22	37·33	+ 0·11	72. 32. 47·90	49·30	+ 1·40
Feb. 1. 12. 14. 27·4 P	9. 10. 57·43	57·50	+ 0·07	72. 25. 25·50	27·00	+ 1·50
4. 12. 0. 9·4 P	9. 8. 26·36	26·46	+ 0·10	72. 14. 31·90	31·30	− 0·60
5. 11. 55. 23·4 P	9. 7. 36·02	36·03	+ 0·01	72. 10. 55·10	55·80	+ 0·70
22. 10. 35. 21·4 P	8. 54. 22·59	...	...	....	...	...
25. 10. 21. 38·4 P	8. 52. 26·83	...	...	71. 11. 30·80	...	...

RIGHT ASCENSIONS and NORTH POLAR DISTANCES of PHOCEA (25).

Mar. 23. 11. 25. 18·4 P	11. 38. 48·13	44·25	− 3·88	108. 10. 58·60	55·90	− 2·70
26. 11. 10. 55·4 P	11. 36. 11·56	7·56	− 4·00	107. 33. 46·20	44·70	− 1·50
27. 11. 6. 7·4 P	11. 35. 20·14	16·16	− 3·98	107. 20. 56·90	56·30	− 0·60
April 6. 10. 28. 13·1	11. 27. 24·16	20·54	− 3·62	105. 4. 10·61	10·57	− 0·04

RIGHT ASCENSIONS and NORTH POLAR DISTANCES of PROSERPINE (26).

June 12. 12. 2. 46·4	17. 26. 22·28	29·71	+ 7·43	116. 51. 98·67	57·61	−41·06
30. 10. 25. 58·4 P	17. 9. 36·69	...	...	116. 53. 3·00	...	...

RIGHT ASCENSION and NORTH POLAR DISTANCE of AMPHITRITE (29).

June 19. 10. 23. 35·4 P	16. 23. 51·88	50·78	− 1·10	121. 8. 71·60	9·90	−61·70

RIGHT ASCENSIONS and NORTH POLAR DISTANCE of POMONA (32).

Nov. 15. 11. 50. 20·4 P	3. 38. 17·60	18·03	+ 0·43	72. 43. 53·30	53·40	+ 0·10
22. 11. 16. 12·4 P	3. 31. 40·36	40·77	+ 0·41	....	...	...

The letter P signifies that the observation was made at the Observatory of Paris ; the time given is Mean Solar Time of Greenwich.

RIGHT ASCENSION and NORTH POLAR DISTANCE of POLYHYMNIA (28).

Mean Solar Time of Observation.	R.A. from Observation.	Seconds of R.A. in Berliner Jahrbuch.	Apparent Error of Berliner Jahrbuch in R.A.	N.P.D. from Observation.	Seconds of N.P.D. in Berliner Jahrbuch.	Apparent Error of Berliner Jahrbuch in N.P.D.
1875. d h m s	h m s	s	s	° ′ ″	″	″
Jan. 6. 11. 54. 58·4 P	7. 8. 54·63	53·62	− 1·01	64. 39. 1·70	10·60	+ 8·90

RIGHT ASCENSIONS and NORTH POLAR DISTANCES of EUGENIA (45).

June 19. 11. 0. 1·4 P	17. 0. 23·58	39·37	+15·79	102. 36. 38·50	70·90	+32·40
30. 10. 8. 38·4 P	16. 52. 14·30	...	...	102. 53. 23·30	...	...

RIGHT ASCENSIONS and NORTH POLAR DISTANCES of HESTIA (46).

Jan. 5. 11. 33. 53·4 P	6. 43. 49·25	48·31	− 0·94	70. 33. 42·80	40·10	− 2·70
6. 11. 28. 55·4 P	6. 42. 46·87	45·90	− 0·97	70. 32. 9·00	8·00	− 1·00
15. 10. 54. 2·1	6. 33. 56·47	56·05	− 0·42	70. 18. 13·45	11·68	− 1·77

RIGHT ASCENSIONS and NORTH POLAR DISTANCES of AGLAIA (47).

Mar. 26. 11. 58. 26·4 P	12. 23. 50·92	50·97	+ 0·05	92. 52. 45·20	49·60	+ 4·40
27. 11. 53. 41·4 P	12. 23. 1·06	1·20	+ 0·14	92. 48. 54·30	57·40	+ 3·10

RIGHT ASCENSIONS and NORTH POLAR DISTANCES of PALES (49).

Jan. 5. 10. 54. 23·4 P	6. 4. 12·57	9·67	− 2·90	65. 18. 72·30	58·30	−14·00
6. 10. 49. 36·4 P	6. 3. 21·46	18·77	− 2·69	65. 20. 25·40	16·60	− 8·80

RIGHT ASCENSIONS and NORTH POLAR DISTANCES of CALYPSO (53).

Mar. 26. 12. 6. 43·4 P	12. 32. 9·42	14·23	+ 4·81	87. 20. 11·90	37·80	+25·90
27. 12. 1. 57·4 P	12. 31. 18·89	23·37	+ 4·48	87. 13. 12·40	36 20	+23·80

RIGHT ASCENSIONS and NORTH POLAR DISTANCES of ALEXANDRA (54).

Mar. 26. 12. 9. 36·4 P	12. 35. 2·64	1·38	− 1·26	110. 57. 11·90	6·10	− 5·80
27. 12. 4. 43·4 P	12. 34. 5·18	3·91	− 1·27	110. 55. 31·00	21·00	−10·00

RIGHT ASCENSIONS and NORTH POLAR DISTANCES of PANDORA (55).

Apr. 27. 12. 4. 5·4 P	14. 35. 40·28	41·14	+ 0·86	110. 57. 2·60	11·80	+ 9·20
28. 11. 59. 14·4 P	14. 34. 45·07	46·14	+ 1·07	110. 54. 52·60	60·00	+ 7·40
29. 11. 54. 24·4 P	14. 33. 50·57	50·97	+ 0·40	110. 52. 36·10	43·50	+ 7·40
May 4. 11. 30. 8·4 P	14. 29. 14·02	14·22	+ 0·20	110. 40. 16·70	18·50	+ 1·80
24. 9. 54. 48·4 P	14. 12. 29·54	...	...	109. 41. 55·60	...	...
25. 9. 50. 11·4 P	14. 11. 47·67	...	...	109. 39. 1·90	...	...

The letter P signifies that the observation was made at the Observatory of Paris; the time given is Mean Solar Time of Greenwich.

RIGHT ASCENSION and NORTH POLAR DISTANCE of CONCORDIA (58).

Mean Solar Time of Observation.	R.A. from Observation.	Seconds of R.A. in Berliner Jahrbuch.	Apparent Error of Berliner Jahrbuch in R.A.	N.P.D. from Observation.	Seconds of N.P.D. in Berliner Jahrbuch.	Apparent Error of Berliner Jahrbuch in N.P.D.
1875. d h m s	h m s	s	s	° ′ ″	″	″
Sept. 27. 11. 24. 56·4 P	23. 59. 38·32	38·86	+ 0·54	92. 52. 43·70	39·70	− 4·00

RIGHT ASCENSION and NORTH POLAR DISTANCE of ELPIS (59).

Jan. 5. 10. 17. 54·4 P	5. 27. 38·25	...	...	79. 59. 8·40	...	...

RIGHT ASCENSIONS and NORTH POLAR DISTANCES of ECHO (60).

Sept. 27. 12. 19. 39·4 P	0. 54. 30·46	28·61	− 1·85	83. 57. 55·70	65·70	+10·00
Oct. 2. 12. 5. 0·3	0. 50. 10·82	9·00	− 1·82	84. 35. 16·15	24·88	+ 8·73
5. 11. 50. 32·2	0. 47. 30·00	28·16	− 1·84	84. 58. 22·31	31·66	+ 9·35
6. 11. 45. 42·5	0. 46. 36·09	34·14	− 1·95	85. 6. 7·46	18·12	+10·66
23. 10. 15. 8·4 P	0. 32. 8·94	7·26	− 1·68	87. 13. 4·90	21·30	+16·40

RIGHT ASCENSION and NORTH POLAR DISTANCE of ERATO (63).

May 24. 11. 20. 36·4 P	15. 38. 31·16	29·01	− 2·15	106. 33. 58·40	120·20	+61·80

RIGHT ASCENSION and NORTH POLAR DISTANCE of ANGELINA (64).

June 30. 10. 40. 10·4 P	17. 23. 51·65	55·95	+ 4·30	114. 34. 19·20	20·80	+ 1·60

RIGHT ASCENSIONS and NORTH POLAR DISTANCES of CYBELE (65).

July 19. 11. 36. 4·4 P	19. 34. 49·11	46·84	− 2·27	107. 58. 5·60	10·20	+ 4·60
20. 11. 31. 24·4 P	19. 34. 4·48	2·18	− 2·30	108. 0. 40·20	46·10	+ 5·90
24. 11. 12. 44·4 P	19. 31. 8·69	6·54	− 2·15	108. 11. 6·20	12·00	+ 5·80
28. 10. 54. 13·4 P	19. 28. 19·99	17·78	− 2·21	108. 21. 31·30	36·40	+ 5·10
29. 10. 49. 36·4 P	19. 27. 39·09	37·02	− 2·07	108. 24. 7·40	11·40	+ 4·00
31. 10. 40. 25·4 P	19. 26. 19·52	17·48	− 2·04	108. 29. 16·80	19·30	+ 2·50

RIGHT ASCENSIONS and NORTH POLAR DISTANCES of ASIA (67).

Jan. 26. 11. 37. 2·4 P	8. 9. 46·36	46·75	+ 0·39	79. 1. 18·50	17·80	− 0·70
27. 11. 32. 7·4 P	8. 8. 47·68	48·05	+ 0·37	78. 57. 26·70	26·70	0·00
30. 11. 17. 26·4 P	8. 5. 53·66	54·17	+ 0·51	78. 45. 35·90	35·50	− 0·40
Feb. 1. 11. 7. 41·4 P	8. 4. 0·37	0·71	+ 0·34	78. 37. 25·50	26·10	+ 3·60
4. 10. 53. 9·4 P	8. 1. 15·06	15·42	+ 0·36	78. 25. 8·60	5·70	− 2·90
5. 10. 48. 19·4 P	8. 0. 21·39	21·87	+ 0·48	78. 20. 53·90	55·10	+ 1·20

The letter P signifies that the observation was made at the Observatory of Paris; the time given is Mean Solar Time of Greenwich.

RIGHT ASCENSIONS and NORTH POLAR DISTANCES of LETO (68).

Mean Solar Time of Observation.	R.A. from Observation.	Seconds of R.A. in Berliner Jahrbuch.	Apparent Error of Berliner Jahrbuch in R.A.	N.P.D. from Observation.	Seconds of N.P.D. in Berliner Jahrbuch.	Apparent Error of Berliner Jahrbuch in N.P.D.
1875. d h m s	h m s	s	s	° ′	″	″
May 24. 10. 1. 47·4 P	14. 18. 89·72	58·80	−30·92	104. 7. 214·20	39·50	−174·70
26. 9. 52. 29·4 P	14. 18. 2·89	...	...	104. 7. 58·80	...	...

RIGHT ASCENSIONS and NORTH POLAR DISTANCES of NIOBE (71).

Sept. 6. 12. 16. 8·5	23. 18. 50·46	49·42	− 1·04	71. 9. 21·55	20·64	− 0·91
17. 11. 12. 26·4 P	23. 7. 41·08	40·01	− 1·07	71. 17. 21·20	22·50	+ 1·30
23. 10. 43. 1·4 P	23. 1. 50·47	...	...	71. 31. 10·40	...	...
27. 10. 23. 37·4 P	22. 58. 9·62	...	...	71. 43. 21·60	...	...

RIGHT ASCENSION and NORTH POLAR DISTANCE of FERONIA (72).

May 20. 11. 28. 51·4 P	15. 30. 61·05	40·78	−20·27	103. 59. 191·40	42·70	−148·70

RIGHT ASCENSIONS and NORTH POLAR DISTANCES of CLYTIE (73).

Mar. 26. 11. 3. 18·4 P	11. 28. 33·67	47·71	+14·04	85. 48. 49·10	109·00	+ 59·90
27. 10. 58. 34·4 P	11. 27. 45·94	59·95	+14·01	85. 44. 41·60	102·80	+ 61·20

RIGHT ASCENSION and NORTH POLAR DISTANCE of GALATEA (74).

May 24. 11. 39. 8·4 P	15. 56. 66·30	57·97	− 8·33	106. 13. 110·30	54·80	− 55·50

RIGHT ASCENSIONS and NORTH POLAR DISTANCES of EURYDICE (75).

Sept. 7. 12. 55. 16·6	0. 2. 1·59	0·67	− 0·92	91. 23. 14·22	20·97	+ 6·75
17. 11. 58. 38·4 P	23. 53. 60·13	59·20	− 0·93	91. 23. 27·80	35·60	+ 7·80
27. 11. 11. 5·4 P	23. 45. 44·85	44·10	− 0·75	91. 24. 53·80	61·80	+ 8·00
Oct. 6. 10. 38. 43·0	23. 39. 25·61	24·69	− 0·92	91. 21. 54·27	63·48	+ 9·21
11. 10. 16. 22·6	23. 36. 44·30	43·67	− 0·63	91. 17. 0·83	6·42	+ 5·59

RIGHT ASCENSIONS and NORTH POLAR DISTANCES of ALCMENE (82).

April 5. 12. 15. 26·4 P	13. 20. 19·02	18·63	− 0·39	97. 45. 38·60	36·60	− 2·00
20. 11. 3. 33·4 P	13. 7. 22·33	21·71	− 0·62	96. 49. 21·70	19·20	− 2·50
23. 10. 49. 27·4 P	13. 5. 2·21	...	...	96. 39. 24·30	...	...
24. 10. 44. 45·4 P	13. 4. 17·37	...	...	96. 36. 18·70	...	...

RIGHT ASCENSION and NORTH POLAR DISTANCE of CLIO (81).

Mar. 27. 11. 43. 59·4 P	12. 13. 17·81	6·89	−10·92	101. 37. 144·90	52·30	−92·60

The letter P signifies that the observation was made at the Observatory of Paris; the time given is Mean Solar Time of Greenwich.

RIGHT ASCENSIONS and NORTH POLAR DISTANCES of THISBE (88).

Mean Solar Time of Observation.	R.A. from Observation.	Seconds of R.A. in Berliner Jahrbuch.	Apparent Error of Berliner Jahrbuch in R.A.	N.P.D. from Observation.	Seconds of N.P.D. in Berliner Jahrbuch.	Apparent Error of Berliner Jahrbuch in N.P.D.
1875. d h m s	h m s	s	s	° ′ ″	″	″
June 22. 11. 31. 28·4 P	17. 43. 45·64	53·60	+ 7·96	114. 51. 43·80	41·10	— 2·70
30. 10. 52. 47·4 P	17. 36. 30·80	38·72	+ 7·92	114. 26. 45·80	45·20	— 0·60

RIGHT ASCENSIONS and NORTH POLAR DISTANCES of MINERVA (93).

April 5. 12. 7. 36·4 P	13. 12. 27·52	39·25	+11·73	101. 19. 6·20	115·80	+109·60
20. 10. 54. 36·4 P	12. 58. 24·01	35·39	+11·38	100. 47. 34·00	147·10	+113·10
23. 10. 40. 11·4 P	12. 55. 46·03	57·32	+11·29	103. 40. 49·90	164·80	+114·90
24. 10. 35. 24·4 P	12. 54. 54·86	66·22	+11·36	100. 38. 38·60	152·50	+113·90
27. 10. 21. 8·4 P	12. 52. 26·67	38·33	+11·66	100. 32. 9·80	126·40	+116·60
28. 10. 16. 25·4 P	12. 51. 39·46	51·00	+11·54	100. 30. 1·60	122·10	+120·50
29. 10. 11. 43·4 P	12. 50. 53·53	64·76	+11·23	100. 28. 2·60	120·50	+117·90
30. 10. 7. 2·4 P	12. 50. 8·34	19·64	+11·30	100. 26. 8·00	122·00	+114·00

RIGHT ASCENSION and NORTH POLAR DISTANCE of AURORA (94).

Feb. 4. 12. 20. 58·4 P	9. 29. 18·79	32·14	+13·35	65. 55. 25·30	41·80	+16·50

RIGHT ASCENSIONS and NORTH POLAR DISTANCES of CLOTHO (97).

Nov. 13. 11. 41. 21·4 P	3. 21. 24·03	16·20	— 7·83	93. 36. 2·70	26·60	+23·90
15. 11. 31. 59·4 P	3. 19. 53·12	45·52	— 7·60	93. 48. 2·70	28·70	+26·00
22. 10. 58. 18·4 P	3. 14. 43·52	35·76	— 7·76	94. 14. 47·20	67·90	+20·70

RIGHT ASCENSIONS and NORTH POLAR DISTANCES of IANTHE (98).

Nov. 15. 10. 56. 39·4 P	....	...	...	52. 11. 55·50	20·30	—35·20
22. 10. 20. 58·4 P	2. 36. 16·68	25·35	+ 8·67	52. 28. 84·10	50·10	—34·00

RIGHT ASCENSION and NORTH POLAR DISTANCE of HECATE (100).

Dec. 23. 11. 48. 23·4 P	6. 6. 9·75	17·90	+ 8·15	71. 52. 33·60	27·80	— 5·80

RIGHT ASCENSIONS and NORTH POLAR DISTANCES of HELENA (101).

March 26. 11. 27. 29·4 P	11. 52. 49·02	41·06	— 7·96	94. 39. 88·20	8·00	—80·20
27. 11. 22. 37·4 P	11. 51. 52·18	44·25	— 7·93	94. 36. 81·60	1·00	—80·60

RIGHT ASCENSIONS and NORTH POLAR DISTANCES of HERA (103).

Feb. 22. 12. 3. 35·4 P	10. 22. 50·85	50·74	— 0·11	77. 18. 17·30	16·80	— 0·50
25. 11. 49. 17·4 P	10. 20. 19·87	19·76	— 0·11	76. 59. 6·70	6·30	— 0·40
Mar. 5. 11. 11. 17·4 P	10. 13. 46·63	46·58	— 0·05	76. 10. 33·50	35·60	+ 2·10

The letter P signifies that the observation was made at the Observatory of Paris; the time given is Mean Solar Time of Greenwich.

RIGHT ASCENSIONS and NORTH POLAR DISTANCES of HECUBA (108).

Mean Solar Time of Observation.	R.A. from Observation.	Seconds of R.A. in Berliner Jahrbuch.	Apparent Error of Berliner Jahrbuch in R.A.	N.P.D. from Observation.	Seconds of N.P.D. in Berliner Jahrbuch.	Apparent Error of Berliner Jahrbuch in N.P.D.
1875. d h m s	h m s	s	s	° ′ ″	″	
April 23. 11. 19. 13·4 P	13. 34. 54·88	57·52	+ 2·64	104. 13. 27·50	37·40	+ 9·90
24. 11. 14. 31·4 P	13. 34. 8·82	11·44	+ 2·62	104. 10. 5·00	13·70	+ 8·70
29. 10. 51. 9·4 P	13. 30. 25·45	28·13	+ 2·68	103. 53. 4·60	19·50	+14·90
30. 10. 46. 31·4 P	13. 29. 42·82	45·21	+ 2·39	103. 49. 45·50	57·40	+11·90

RIGHT ASCENSIONS and NORTH POLAR DISTANCES of FELICITAS (109).

Feb. 22. 11. 26. 24·4 P	9. 45. 33·77	42·08	+ 8·31	67. 37. 42·00	93·10	+51·10
25. 11. 11. 39·4 P	9. 42. 36·65	44·77	+ 8·12	67. 36. 31·70	80·20	+48·50
March 5. 10. 33. 9·4 P	9. 35. 22·12	...	...	....	...	..

RIGHT ASCENSIONS and NORTH POLAR DISTANCES of ATE (111).

Nov. 13. 11. 15. 54·4 P	2. 55. 53·03	49·67	− 3·36	64. 47. 64·20	52·80	−11·40
15. 11. 6. 4·4 P	2. 53. 54·32	50·92	− 3·40	64. 57. 48·50	37·10	−11·40
22. 10. 31. 57·4 P	2. 47. 17·25	13·65	− 3·60	65. 34. 30·00	20·80	− 9·20

RIGHT ASCENSION and NORTH POLAR DISTANCE of AMALTHÆA (113).

May 26. 11. 1. 1·4 P	15. 26. 46·51	176·41	+129·90	100. 12. 42·10	576·00	+533·90

RIGHT ASCENSIONS and NORTH POLAR DISTANCES of CASSANDRA (114).

July 26. 10. 47. 18·4 P	19. 13. 31·34	16·16	−15·18	106. 33. 16·00	32·30	+16·30
27. 10. 42. 35·4 P	19. 12. 43·76	28·37	−15·39	106. 36. 24·10	38·30	+14·20
29. 10. 33. 10·4 P	19. 10. 70·14	55·20	−14·94	106. 42. 32·10	50·70	+18·60
31. 10. 23. 48·4 P	19. 9. 40·31	...	...	106. 48. 48·20	...	...

RIGHT ASCENSIONS and NORTH POLAR DISTANCES of THYRA (115).

Oct. 21. 10. 31. 58·4 P	0. 41. 8·70	38·80	+30·10	60. 48. 265·80	33·70	−232·10
23. 10. 22. 17·4 P	0. 39. 19·17	49·15	+29·98	60. 58. 287·00	53·30	−233·70
25. 10. 12. 42·4 P	0. 37. 35·66	65·40	+29·74	61. 10. 247·40	16·30	−231·10

RIGHT ASCENSIONS and NORTH POLAR DISTANCES of LACHESIS (120).

Dec. 17. 9. 52. 22·4 P	3. 46. 9·63	21·86	+12·23	60. 5. 54·50	1·30	−53·20
18. 9. 47. 44·4 P	3. 45. 27·86	40·10	+12·24	60. 8. 83·40	32·80	−50·60

The letter P signifies that the observation was made at the Observatory of Paris; the time given is Mean Solar Time of Greenwich.

RIGHT ASCENSIONS and NORTH POLAR DISTANCES of ALCESTIS (124).

Mean Solar Time of Observation.	R.A. from Observation.	Seconds of R.A. in Berliner Jahrbuch	Apparent Error of Berliner Jahrbuch in R.A.	N.P.D. from Observation.	Seconds of N.P.D. in Berliner Jahrbuch.	Apparent Error of Berliner Jahrbuch in N.P.D.
1875. d h m s	h m s	s	s	° ′ ″	″	″
Mar. 5. 12. 25. 29·4 P	11. 27. 68·59	53·60	−14·99	88. 13. 133·20	48·60	−84·60
9. 12. 15. 44·7	11. 24. 49·94	34·85	−15·09	87. 47. 142·35	55·89	−86·46
23. 10. 59. 59·4 P	11. 13. 24·40	...	...	86. 18. 1·80	...	...
26. 10. 45. 57·4 P	11. 11. 10·27	...	...	85. 59. 32·80	...	...
27. 10. 41. 19·4 P	11. 10. 27·22	...	...	85. 53. 36·10	...	...

RIGHT ASCENSIONS and NORTH POLAR DISTANCES of NEMESIS (128).

May 24. 11. 34. 44·4 P	15. 52. 41·99	...	...	107. 38. 0·80	...	...
26. 11. 25. 2·4 P	15. 50. 50·84	...	...	107. 37. 44·20	...	...

RIGHT ASCENSIONS and NORTH POLAR DISTANCES of SOPHROSYNE (134).

Feb. 25. 11. 49. 39·4 P	10. 20. 42·65	97·98	+55·33	75. 5. 55·60	596·80	+541·20
Mar. 5. 11. 9. 54·4 P	10. 12. 22·98	78·03	+55·05	75. 3. 38·70	561·70	+523·00

RIGHT ASCENSIONS and NORTH POLAR DISTANCES of HERTHA (135).

July 26. 12. 2. 33·4 P	20. 28. 58·23	...	...	112. 15. 45·40	...	...
27. 11. 57. 42·4 P	20. 28. 3·06	...	...	112. 17. 23·50	...	...
28. 11. 52. 51·4 P	20. 27. 7·88	...	...	112. 19. 3·30	...	...
29. 11. 48. 0·4 P	20. 26. 12·72	...	...	112. 20. 24·20	...	...
31. 11. 38. 19·4 P	20. 24. 23·20	...	...	112. 23. 6·00	...	...
Aug. 17. 10. 18. 13·4 P	20. 11. 5·73	...	...	112. 30. 6·30	...	...
20. 10. 4. 49·4 P	20. 9. 28·67	...	...	112. 27. 59·70	...	...
23. 9. 51. 41·4 P	20. 8. 8·76	...	...	112. 24. 56·40	...	...
25. 9. 43. 7·4 P	20. 7. 25·79	...	...	112. 22. 17·50	...	...

RIGHT ASCENSION and NORTH POLAR DISTANCE of AUSTRIA (136).

Oct. 5. 10. 7. 24·0	23. 4. 4·88	...	...	93. 18. 48·76	...	...

RIGHT ASCENSIONS and NORTH POLAR DISTANCES of the CENTER of JUPITER.

Mean Solar Time of Transit of Center.	Observer.	R.A. from Observation.	Seconds of R.A. in Nautical Almanac.	Apparent Error of Nautical Almanac in R.A.	N.P.D. from Observation.	Seconds of N.P.D. in Nautical Almanac.	Apparent Error of Nautical Almanac in N.P.D.
1875. d h m s		h m s	s	s	° ′ ″	″	″
Mar. 9. 14. 47. 33·8	AD	13. 57. 3·99	3·37	− 0·62	100. 23. 54·81	56·10	+ 1·29
24. 13. 43. 40·6	G	13. 52. 8·50	7·68	− 0·82	99. 54. 29·04	29·60	+ 0·56
April 5. 12. 51. 21·0	T	13. 46. 58·96	58·04	− 0·92	99. 24. 41·75	41·10	− 0·65
13. 13. 16. 7·5	AD	13. 43. 12·09	11·21	− 0·88	99. 3. 9·52	10·00	+ 0·48
14. 12. 11. 42·8	T	13. 42. 43·26	42·34	− 0·92	99. 0. 27·56	26·60	− 0·96
15. 12. 7. 17·8	C	13. 42. 14·10	13·42	− 0·68	98. 57. 42·27	43·20	+ 0·93

The letter P signifies that the observation was made at the Observatory of Paris; the time given is Mean Solar Time of Greenwich.

RIGHT ASCENSIONS and NORTH POLAR DISTANCES of the CENTER of JUPITER—*concluded.*

Mean Solar Time of Transit of Center.	Observer.	R.A. from Observation.	Seconds of R.A. in Nautical Almanac.	Apparent Error of Nautical Almanac in R.A.	N.P.D. from Observation.	Seconds of N.P.D. in Nautical Almanac.	Apparent Error of Nautical Almanac in N.P.D.
1875. d h m s		h m s	s	s	° ′ ″	″	″
April 16. 12. 2. 53·2	G	13. 41. 45·29	44·48	− 0·81	98. 54. 61·20	59·90	− 1·30
17. 11. 58. 28·5	AD	13. 41. 16·49	15·53	− 0·96	98. 52. 16·51	16·60	+ 0·09
19. 11. 49. 38·8	L	13. 40. 18·41	17·69	− 0·72	98. 46. 51·47	51·00	− 0·47
20. 11. 45. 14·2	C	13. 39. 49·66	48·83	− 0·83	98. 44. 10·29	8·80	− 1·49
24. 11. 27. 36·3	T	13. 37. 55·09	54·27	− 0·82	98. 33. 27·50	27·50	0·00
27. 11. 14. 24·7	P	13. 36. 30·94	29·80	− 1·14	98. 25. 37·45	37·10	− 0·35
28. 11. 10. 0·8	G	13. 36. 2·92	2·02	− 0·90	98. 23. 3·30	2·80	− 0·50
29. 11. 5. 37·4	AD	13. 35. 35·34	34·46	− 0·88	98. 20. 30·42	30·10	− 0·32
30. 11. 1. 14·3	T	13. 35. 8·02	7·14	− 0·88	98. 17. 59·50	58·90	− 0·60
May 4. 10. 43. 44·3	T	13. 33. 21·46	20·59	− 0·87	98. 8. 12·42	12·00	− 0·42
10. 10. 17. 39·7	AD	13. 30. 51·87	51·02	− 0·85	97. 54. 36·44	37·40	+ 0·96
11. 10. 13. 20·4	T	13. 30. 28·40	27·49	− 0·91	97. 52. 28·91	30·50	+ 1·59
12. 10. 9. 1·3	L	13. 30. 5·20	4·40	− 0·80	97. 50. 27·58	26·40	− 1·18
13. 10. 4. 42·9	T	13. 29. 42·64	41·76	− 0·88	97. 48. 25·33	25·20	− 0·13
14. 10. 0. 25·0	P	13. 29. 20·54	19·60	− 0·94	97. 46. 27·72	26·90	− 0·82
15. 9. 56. 7·3	AD	13. 28. 58·75	57·90	− 0·85	97. 44. 31·63	31·60	− 0·03
18. 9. 43. 17·6	C	13. 27. 56·57	55·79	− 0·78	97. 39. 4·19	4·30	+ 0·11
19. 9. 39. 2·1	AD	13. 27. 36·90	36·12	− 0·78	97. 37. 21·78	21·60	− 0·18
21. 9. 30. 32·6	G	13. 26. 59·17	58·39	− 0·78	97. 34. 5·87	6·10	+ 0·23
22. 9. 26. 18·7	C	13. 26. 41·09	40·34	− 0·75	97. 32. 33·56	33·50	− 0·06
24. 9. 17. 52·6	T	13. 26. 6·79	5·93	− 0·86	97. 29. 39·24	38·70	− 0·54
25. 9. 13. 40·2	P	13. 25. 50·22	49·59	− 0·63	97. 28. 15·76	16·70	+ 0·94
26. 9. 9. 28·9	J	13. 25. 34·76	33·83	− 0·93	97. 26. 57·96	58·20	+ 0·24
31. 8. 48. 39·7	AD	13. 24. 24·93	24·11	− 0·82	97. 21. 21·51	21·60	+ 0·09
June 1. 8. 44. 31·7	T	....	....	....	97. 20. 26·65	25·70	− 0·95
2. 8. 40. 24·3	L	13. 24. 1·32	0·58	− 0·74	97. 19. 33·29	33·80	+ 0·51
3. 8. 36. 16·9	P	....	....	....	97. 18. 45·54	45·80	+ 0·26
8. 8. 15. 54·1	T	13. 23. 6·40	5·51	− 0·89	97. 15. 44·88	45·70	+ 0·82
9. 8. 11. 51·3	G	13. 22. 59·50	58·65	− 0·85	97. 15. 21·35	21·90	+ 0·55

RIGHT ASCENSIONS and NORTH POLAR DISTANCES of the CENTER of SATURN.

July 1. 15. 14. 3·2	L	21. 53. 5·08	4·11	− 0·97	104. 13. 47·99	44·00	− 3·99
28. 13. 22. 7·0	T	21. 47. 17·59	16·60	− 0·99	104. 48. 11·99	8·90	− 3·09
29. 13. 17. 55·1	L	....	....	....	104. 49. 42·02	38·90	− 3·12
Aug. 2. 13. 1. 5·9	L	21. 45. 55·82	55·05	− 0·77	104. 55. 48·54	44·00	− 4·54
4. 12. 52. 40·8	T	21. 45. 22·44	21·52	− 0·92	104. 58. 53·32	49·00	− 4·32
12. 12. 18. 56·1	WL	21. 43. 4·62	3·86	− 0·76	105. 11. 21·52	16·00	− 5·52
16. 12. 2. 2·8	RP	21. 41. 54·81	53·94	− 0·87	105. 17. 34·93	28·60	− 6·33
20. 11. 45. 9·2	WL	21. 40. 44·74	44·02	− 0·72	105. 23. 41·61	36·60	− 5·01
23. 11. 32. 29·8	G	21. 39. 52·84	51·91	− 0·93	105. 28. 16·56	8·00	− 8·56
24. 11. 28. 16·4	RP	21. 39. 35·30	34·64	− 0·66	105. 29. 43·61	37·40	− 6·21
25. 11. 24. 3·4	T	21. 39. 18·18	17·45	− 0·73	105. 31. 14·88	6·20	− 8·68
31. 10. 58. 47·1	RP	21. 37. 37·05	36·33	− 0·72	105. 39. 47·75	43·10	− 4·65
Sept. 3. 10. 46. 10·5	W	21. 36. 48·03	47·47	− 0·56	105. 43. 55·76	49·40	− 6·36
6. 10. 33. 35·5	C	....	....	....	105. 47. 53·23	46·30	− 6·93
7. 10. 29. 24·2	AD	21. 35. 45·13	44·63	− 0·50	105. 49. 9·93	3·00	− 6·93
8. 10. 25. 13·0	WL	21. 35. 29·88	29·39	− 0·49	....	....	....
9. 10. 21. 2·1	P	21. 35. 14·78	14·35	− 0·43	105. 51. 42·50	32·60	− 9·90
14. 10. 0. 10·9	C	21. 34. 2·95	2·46	− 0·49	105. 57. 32·47	24·10	− 8·37
15. 9. 56. 1·5	AD	21. 33. 49·39	48·80	− 0·59	105. 58. 36·50	30·30	− 6·20
17. 9. 47. 43·0	WL	21. 33. 22·67	22·23	− 0·44	106. 0. 45·32	38·20	− 7·12
18. 9. 43. 34·2	C	21. 33. 9·79	9·34	− 0·45	106. 1. 48·00	40·00	− 8·00
20. 9. 35. 17·5	P	21. 32. 44·80	44·38	− 0·42	106. 3. 46·05	38·90	− 7·15
25. 9. 14. 40·9	AD	21. 31. 47·53	47·06	− 0·47	106. 8. 15·54	8·60	− 6·94
27. 9. 6. 28·1	C	21. 31. 26·58	26·30	− 0·28	106. 9. 51·87	44·80	− 7·07

RIGHT ASCENSIONS and NORTH POLAR DISTANCES of the CENTER of SATURN—*concluded.*

Mean Solar Time of Transit of Center.	Observer.	R.A. from Observation.	Seconds of R.A. in Nautical Almanac.	Apparent Error of Nautical Almanac in R.A.	N.P.D. from Observation.	Seconds of N.P.D. in Nautical Almanac.	Apparent Error of Nautical Almanac in N.P.D.
1875. d h m s		h m s	s	s	° ′ ″	″	″
Sept. 29. 8. 58. 17·0	AD	21. 31. 7·20	6·85	− 0·35	106. 11. 20·91	14·00	− 6·91
30. 8. 54. 11·9	P	21. 30. 58·02	57·63	− 0·39	106. 11. 63·97	55·90	− 8·07
Oct. 2. 8. 46. 2·7	AD	21. 30. 40·57	40·23	− 0·34	106. 13. 21·10	14·50	− 6·60
5. 8. 33. 51·6	C	21. 30. 17·12	16·78	− 0·34	106. 14. 66·96	58·60	− 8·36
6. 8. 29. 48·7	AD	21. 30. 10·13	9·69	− 0·44	106. 15. 37·44	29·60	− 7·84
8. 8. 21. 43·8	C	21. 29. 56·98	56·62	− 0·36	106. 16. 34·12	26·00	− 8·12
9. 8. 17. 41·7	L	21. 29. 50·77	50·64	− 0·13	106. 16. 57·45	51·30	− 6·15
12. 8. 5. 38·6	C	21. 29. 35·32	34·97	− 0·35	106. 17. 63·92	55·80	− 8·12
13. 8. 1. 38·0	L	21. 29. 30·62	30·52	− 0·10	106. 18. 23·15	13·50	− 9·65
16. 7. 49. 39·4	C	21. 29. 19·71	19·48	− 0·23	106. 18. 63·11	55·00	− 8·11
21. 7. 29. 49·3	WL	....	....	....	106. 19. 33·72	25·30	− 8·42
25. 7. 14. 4·4	P	21. 29. 7·90	7·66	− 0·24	106. 19. 22·34	14·40	− 7·94
Nov. 4. 6. 35. 10·6	C	21. 29. 33·24	32·94	− 0·30	106. 16. 36·76	29·10	− 7·66
8. 6. 19. 47·3	C	21. 29. 54·57	54·37	− 0·20	106. 14. 37·58	28·40	− 9·18
12. 6. 4. 32·3	P	21. 30. 22·33	22·12	− 0·21	106. 11. 64·00	57·10	− 6·90
15. 5. 53. 9·4	T	21. 30. 47·29	47·03	− 0·26	106. 9. 54·41	43·90	−10·51
18. 5. 41. 50·0	G	21. 31. 15·65	15·37	− 0·28	106. 7. 21·48	14·20	− 7·28
29. 5. 0. 47·0	AD	21. 33. 28·10	27·84	− 0·26	105. 55. 55·39	47·10	− 8·29

RIGHT ASCENSIONS and NORTH POLAR DISTANCES of the CENTER of URANUS.

Jan.	28. 12. 32. 57·3	G	9. 4. 23·08	33·85	+10·77	72. 30. 59·57	93·10	+33·53
	30. 12. 24. 44·5	M	9. 4. 2·13	12·87	+10·74	72. 29. 29·30	62·10	+32·80
Feb.	1. 12. 16. 31·8	L	9. 3. 41·18	51·82	+10·64	72. 27. 56·51	91·20	+34·69
	18. 11. 6. 46·1	G	9. 0. 45·45	55·97	+10·52	72. 15. 31·43	65·30	+33·87
	25. 10. 38. 7·0	G	8. 59. 37·52	48·50	+10·98	72. 10. 52·66	85·90	+33·24
Mar.	4. 10. 9. 33·7	AD	8. 58. 35·43	46·07	+10·64	72. 6. 38·39	71·20	+32·81
	5. 10. 5. 29·4	J	8. 58. 27·02	37·64	+10·62	72. 6. 4·70	37·10	+32·40
	9. 9. 49. 13·6	AD	8. 57. 54·70	65·34	+10·64	72. 3. 55·03	87·20	+32·17
April	2. 8. 12. 34·7	AD	8. 55. 37·23	47·74	+10·51	71. 55. 5·49	36·20	+30·71
	5. 8. 0. 37·7	T	8. 55. 27·92	38·30	+10·38	71. 54. 33·16	63·10	+29·94
	6. 7. 56. 39·0	J	8. 55. 25·14	35·57	+10·43	71. 54. 22·26	53·80	+31·54
	12. 7. 32. 51·5	L	8. 55. 13·10	23·64	+10·54	71. 53. 45·56	76·50	+30·94
	13. 7. 28. 54·5	AD	8. 55. 11·95	22·40	+10·50	71. 53. 43·11	73·50	+30·39
	14. 7. 24. 57·8	T	8. 55. 11·14	21·38	+10·24	71. 53. 41·29	71·30	+30·01
	15. 7. 21. 0·9	C	8. 55. 10·16	20·57	+10·41	71. 53. 39·40	70·00	+30·60
	16. 7. 17. 4·4	G	8. 55. 9·58	19·98	+10·40	71. 53. 37·92	69·60	+31·68
	17. 7. 13. 8·2	AD	8. 55. 9·28	19·61	+10·33	71. 53. 38·65	70·10	+31·45
	19. 7. 5. 16·3	L	8. 55. 9·21	19·52	+10·31	71. 53. 42·35	73·70	+31·35
	20. 7. 1. 20·7	C	8. 55. 9·49	19·80	+10·31	71. 53. 45·60	76·90	+31·30

RIGHT ASCENSIONS and NORTH POLAR DISTANCES of the CENTER of NEPTUNE.

Jan.	5. 6. 46. 48·4	L	1. 46. 36·52	36·67	+ 0·15	80. 52. 29·07	26·90	− 2·17
	15. 6. 7. 31·7	L	1. 46. 38·97	38·89	− 0·08	80. 51. 37·13	36·30	− 0·83
	16. 6. 3. 36·7	AD	1. 46. 39·89	39·84	− 0·05	80. 51. 25·73	27·20	+ 1·47
	25. 5. 28. 28·0	C	1. 46. 54·42	54·26	− 0·16	80. 49. 32·67	31·90	− 0·77
Sept.	17. 14. 17. 44·4	WL	2. 4. 8·39	8·37	− 0·02	79. 18. 45·26	46·30	+ 1·04
	18. 14. 13. 43·9	C	2. 4. 3·83	3·65	− 0·18	79. 19. 13·93	14·10	+ 0·17
	28. 13. 33. 33·4	L	2. 3. 12·22	12·09	− 0·13	79. 24. 12·49	12·60	+ 0·11
	29. 13. 29. 31·9	AD	2. 3. 6·63	6·55	− 0·08	79. 24. 42·22	44·30	+ 2·08

RIGHT ASCENSIONS and NORTH POLAR DISTANCES of the CENTER of NEPTUNE—*concluded.*

Mean Solar Time of Transit of Center.	Observer.	R.A. from Observation.	Seconds of R.A. in Nautical Almanac.	Apparent Error of Nautical Almanac in R.A.	N.P.D. from Observation.	Seconds of N.P.D. in Nautical Almanac.	Apparent Error of Nautical Almanac in N.P.D.
1875. d h m s		h m s	s	s	° ′ ″	″	″
Oct. 2. 13. 17. 27·0	AD	2. 2. 49·42	49·54	+ 0·12	79. 26. 20·05	20·90	+ 0·85
5. 13. 5. 21·9	C	2. 2. 32·03	32·00	− 0·03	79. 27. 60·62	59·80	− 0·82
6. 13. 1. 20·1	AD	2. 2. 26·13	26·05	− 0·08	79. 28. 31·89	33·20	+ 1·31
11. 12. 41. 10·4	P	2. 1. 55·85	55·72	− 0·13	79. 31. 21·95	22·60	+ 0·65
12. 12. 37. 8·3	C	2. 1. 49·61	49·54	− 0·07	79. 31. 56·64	56·90	+ 0·26
16. 12. 20. 59·8	C	2. 1. 24·67	24·51	− 0·16	79. 34. 14·61	15·30	+ 0·69
22. 11. 56. 46·3	AD	2. 0. 46·53	46·33	− 0·21	79. 37. 44·21	44·50	+ 0·29
Nov. 8. 10. 48. 8·1	C	1. 58. 58·53	58·45	− 0·08	79. 47. 20·67	23·40	+ 2·73
16. 10. 15. 53·1	WL	1. 58. 10·66	10·49	− 0·17	79. 51. 32·99	34·40	+ 1·41
Dec. 1. 9. 15. 35·0	C	1. 56. 51·07	50·94	− 0·13	79. 58. 18·37	18·70	+ 0·33
13. 8. 27. 34·4	C	1. 56. 1·24	1·10	− 0·14	80. 2. 16·63	18·50	− 0·13
17. 8. 11. 37·3	WL	1. 55. 47·81	47·80	− 0·01	80. 3. 17·63	18·80	+ 1·17
22. 7. 51. 43·8	AD	1. 55. 33·79	33·74	− 0·05	80. 4. 18·57	19·50	+ 0·93
23. 7. 47. 45·4	L	1. 55. 31·34	31·28	− 0·06	80. 4. 29·12	29·60	+ 0·48
31. 7. 16. 2·8	L	1. 55. 16·03	16·02	− 0·01	80. 5. 24·23	24·90	+ 0·67

INVESTIGATION of the POSITION of the ECLIPTIC, from the OBSERVATIONS of the SUN.

Mean Tabular Errors of the Sun in R.A. and N.P.D.; and Errors in Ecliptic North Polar Distance, deduced from the Formula,

Error in Ecliptic North Polar Distance = R × Error of R.A. + S × Error of N.P.D.

Extent of Group.	Mean Day, 1875.	Error in R.A.	Number of Obs.	Error in N.P.D.	Number of Obs.	Error in Ecliptic N.P.D.
		s		"		"
January 2 to Febuary 1	January 18	+ 0·083	7	+ 1·629	7	+ 1·828
February 4 to February 26	February 17	+ 0·054	9	+ 0·967	9	+ 1·181
March 5 to March 27	March 16	+ 0·027	6	+ 1·235	8	+ 1·295
April 2 to April 30	April 19	− 0·033	12	+ 0·372	13	+ 0·175
May 3 to May 26	May 13	+ 0·030	14	+ 0·558	15	+ 0·648
May 31 to June 29	June 14	+ 0·096	14	+ 0·767	15	+ 0·839
July 2 to July 31	July 23	+ 0·051	9	+ 0·392	9	+ 0·232
August 3 to September 1	August 16	+ 0·020	10	+ 1·233	12	+ 1·068
September 4 to September 30	September 15	+ 0·105	13	+ 0·517	13	− 0·147
October 6 to October 25	October 14	+ 0·062	6	+ 1·493	4	+ 1·036
November 8 to November 23	November 15	+ 0·110	5	+ 1·482	5	+ 1·032
December 10 to December 23	December 15	+ 0·042	5	+ 2·018	5	+ 1·987

Equations formed by assuming the Error in Ecliptic North Polar Distance to be represented by the Formula,

$x \times \cos$ Sun's longitude $+ y \times \sin$ Sun's longitude $+ z$,

and altering the number of observations so as to make the assumed weights of opposite parts of the year equal:

Spring	$+ 1''.828 = + 0.4702 \times x - 0.8825 \times y + z$	Weight	7
	$+ 1''.181 = + 0.8523 \times x - 0.5230 \times y + z$	,,	9
	$+ 1''.295 = + 0.9969 \times x - 0.0782 \times y + z$	,,	7
Summer	$+ 0''.175 = + 0.8745 \times x + 0.4851 \times y + z$	,,	7
	$+ 0''.648 = + 0.6118 \times x + 0.7910 \times y + z$	,,	8
	$+ 0''.839 = + 0.1224 \times x + 0.9925 \times y + z$	,,	8
Autumn	$+ 0''.232 = - 0.5025 \times x + 0.8646 \times y + z$	,,	6
	$+ 1''.068 = - 0.8004 \times x + 0.5995 \times y + z$	,,	8
	$- 0''.147 = - 0.9908 \times x + 0.1354 \times y + z$	,,	9
Winter	$+ 1''.036 = - 0.9352 \times x - 0.3540 \times y + z$	,,	7
	$+ 1''.032 = - 0.6053 \times x - 0.7960 \times y + z$	,,	8
	$+ 1''.987 = - 0.1193 \times x - 0.9929 \times y + z$	,,	8

Equations multiplied by the Weights:

Spring	$+12''.796 = + 3.2914 \times x - 6.1775 \times y + 7z$
	$+10''.629 = + 7.6707 \times x - 4.7070 \times y + 9z$
	$+ 9''.065 = + 6.9783 \times x - 0.5474 \times y + 7z$
Summer	$+ 1''.225 = + 6.1215 \times x + 3.3957 \times y + 7z$
	$+ 5''.184 = + 4.8944 \times x + 6.3280 \times y + 8z$
	$+ 6''.712 = + 0.9792 \times x + 7.9400 \times y + 8z$
Autumn	$+ 1''.392 = - 3.0150 \times x + 5.1876 \times y + 6z$
	$+ 8''.544 = - 6.4032 \times x + 4.7960 \times y + 8z$
	$- 1''.323 = - 8.9172 \times x + 1.2186 \times y + 9z$
Winter	$+ 7''.252 = - 6.5464 \times x - 2.4780 \times y + 7z$
	$+ 8''.256 = - 4.8424 \times x - 6.3680 \times y + 8z$
	$+15''.896 = - 0.9544 \times x - 7.9432 \times y + 8z$

New Equations formed by adding and subtracting those above, as indicated below:

Spring + Summer + Autumn + Winter

$+ 85''.628 = - 0.7431 \times x + 0.6448 \times y + 92 \times z$

Spring + Summer − Autumn − Winter

$+ 5''.594 = + 60.6141 \times x + 11.8188 \times y$

Spring − Summer − Autumn + Winter

$+ 42''.160 = + 11.9375 \times x - 57.0870 \times y$

Solution of these Equations:

$$x = + 0''.227$$
$$y = - 0.691$$
$$z = + 0.937$$

The first term, taken alone, indicates that, at the first point of Aries, the error of the tabular Ecliptic N.P.D. is positive, or the assumed Ecliptic is south of the Sun's true path, by $0''.227$, and therefore that the right ascensions of all stars ought to be increased by $\frac{0^s.227}{15 \times \sin 23°.27'} = 0^s.038$.

The second term, taken alone, indicates that the obliquity assumed in the Nautical Almanac ought to be diminished by $0''.691$.

The third term indicates that the obliquity deduced from the southern solstice is less than that deduced from the northern solstice by $1''.874$; or that the mean of observed distances from the pole to the ecliptic is too small by $0''.937$.

MEAN ERRORS of the TABULAR GEOCENTRIC PLACES of the SUN and PLANETS.

THE SUN.

Extent of Group.	Number of Obs. of R.A.	Number of Obs. of N.P.D.	Mean Day, 1875.	Mean Error in R.A.	Mean Error in N.P.D.	Error in Longitude.	Error in E.N.P.D.
				s	"	"	"
Jan. 2 to Feb. 1	7	7	January 18	+ 0·083	+ 1·63	+ 0·82	+ 1·83
Feb. 4 to Feb. 26	9	9	February 17	+ 0·054	+ 0·97	+ 0·41	+ 1·18
March 5 to March 27	6	8	March 16	+ 0·027	+ 1·24	− 0·12	+ 1·30
April 2 to April 30	12	13	April 19	− 0·033	+ 0·37	− 0·59	+ 0·18
May 3 to May 26	14	15	May 13	+ 0·030	+ 0·56	+ 0·27	+ 0·65
May 31 to June 29	14	15	June 14	+ 0·096	+ 0·77	+ 1·28	+ 0·84
July 2 to July 31	9	9	July 23	+ 0·051	+ 0·39	+ 0·79	+ 0·23
Aug. 3 to Sept. 1	10	12	August 16	+ 0·020	+ 1·23	+ 0·68	+ 1·07
Sept. 4 to Sept. 30	13	13	September 15	+ 0·105	+ 0·52	+ 1·65	− 0·15
Oct. 6 to Oct. 25	6	4	October 14	+ 0·062	+ 1·49	+ 1·42	+ 1·04
Nov. 8 to Nov. 23	5	5	November 15	+ 0·110	+ 1·48	+ 1·89	+ 1·03
Dec. 10 to Dec. 23	5	5	December 15	+ 0·042	+ 2·02	+ 0·68	+ 1·99

MERCURY.

Feb. 1	1	1	February 1	+ 0·170	− 0·92	+ 2·63	− 0·05
May 17	1	1	May 17	+ 0·320	+ 1·78	+ 4·05	+ 2·53
May 31 to June 11	3	2	June 3	+ 0·220	+ 0·79	+ 3·31	+ 0·66
July 28 to July 31	1	2	July 30	− 0·010	− 0·41	− 0·19	− 0·38
Aug. 14 to Aug. 17	3	2	August 16	+ 0·070	+ 0·22	+ 1·03	− 0·11
Sept. 7	1	1	September 7	+ 0·030	+ 1·07	+ 0·84	+ 0·80
Nov. 15 to Nov. 19	1	2	November 16	− 0·160	− 0·67	− 2·45	+ 0·15

VENUS.

Jan. 19 to Feb. 1	4	4	January 24	− 0·075	+ 1·69	− 0·96	+ 1·74
Feb. 22 to March 10	3	3	March 3	+ 0·057	+ 1·24	+ 0·56	+ 1·36
March 23 to April 8	4	5	March 29	+ 0·003	− 0·02	+ 0·05	0·00
April 14 to April 24	7	7	April 19	+ 0·051	− 0·56	+ 0·92	− 0·21
May 3 to May 24	7	8	May 13	+ 0·089	+ 0·24	+ 1·14	+ 0·73
June 1 to June 11	4	6	June 6	+ 0·035	+ 0·52	+ 0·34	+ 0·64
June 19 to July 6	5	5	June 27	+ 0·174	+ 0·31	+ 2·37	+ 0·61
July 13 to July 31	3	3	July 24	+ 0·020	− 0·14	+ 0·26	− 0·18
Aug. 10 to Aug. 23	5	5	August 16	+ 0·026	+ 0·96	+ 0·64	+ 0·81
Aug. 31 to Sept. 7	4	4	September 4	+ 0·148	+ 1·12	+ 2·45	+ 0·22
Oct. 12	1	1	October 12	− 0·030	+ 1·09	− 0·01	+ 1·18
Nov. 15 to Nov. 18	1	2	November 16	+ 0·030	− 0·05	+ 0·40	− 0·12

MARS.

Extent of Group.	Number of Obs. of R.A.	Number of Obs. of N.P.D.	Mean Day, 1875.	Mean Error in R.A.	Mean Error in N.P.D.	Error in Longitude.	Error in E.N.P.D.
				s	″	″	″
Jan. 30	1	1	January 30	+ 0·060	+ 0·89	+ 1·05	+ 0·65
March 25	1	1	March 25	+ 0·150	+ 0·61	+ 2·11	+ 0·47
April 25	1	1	April 25	+ 0·280	+ 4·88	+ 3·77	+ 4·93
May 22 to June 4	6	6	May 28	+ 0·190	+ 1·59	+ 2·52	+ 1·66
June 9 to June 26	8	7	June 18	+ 0·093	+ 2·56	+ 1·26	+ 2·55
July 1 to July 12	3	2	July 6	+ 0·123	+ 2·15	+ 1·74	+ 2·06
July 28 to Aug. 7	7	7	August 2	+ 0·196	+ 1·90	+ 2·71	+ 1·73
Aug. 16 to Sept. 9	8	10	August 31	+ 0·165	+ 1·21	+ 2·20	+ 1·21
Sept. 14 to Sept. 29	6	6	September 20	+ 0·168	+ 1·59	+ 2·13	+ 1·76
Oct. 6 to Oct. 25	5	5	October 15	+ 0·158	− 0·31	+ 2·19	+ 0·09
Nov. 4 to Nov. 29	6	6	November 14	+ 0·053	+ 0·44	+ 0·59	+ 0·64
Dec. 17 to Dec. 23	3	3	December 21	+ 0·083	+ 0·89	+ 0·80	+ 1·29

CERES.

Jan. 5 to Jan. 6	2	2	January 6	− 8·805	+19·85	−115·30	+24·67
Jan. 13 to Jan. 15	2	2	January 14	− 8·445	+22·85	−110·50	+25·89
Jan. 20 to Jan. 28	5	5	January 23	− 8·238	+22·93	−107·68	+24·42

JUPITER.

March 10 to April 6	3	3	March 24	− 0·787	+ 0·40	−10·75	+ 4·47
April 14 to May 4	13	13	April 22	− 0·868	− 0·38	−12·14	+ 4·29
May 10 to May 26	13	13	May 18	− 0·826	+ 0·09	−11·38	+ 4·62
May 31 to June 9	4	6	June 5	− 0·825	+ 0·21	−11·32	+ 4·77

SATURN.

July 2 to Aug. 5	4	5	July 26	− 0·913	− 3·81	−10·21	− 8·02
Aug. 13 to Aug. 25	6	6	August 20	− 0·778	− 6·72	− 8·45	−10·01
Aug. 31 to Sept. 20	10	10	September 11	− 0·509	− 7·16	− 4·64	− 9·15
Sept. 25 to Oct. 25	13	14	October 7	− 0·309	− 7·74	− 1·75	− 8·76
Nov. 4 to Nov. 29	6	6	November 14	− 0·252	− 8·30	− 0·79	− 9·03

Extent of Group.	Number of Obs. of R.A.	Number of Obs. of N.P.D.	Mean Day, 1875.	Mean Error in R.A.	Mean Error in N.P.D.	Error in Longitude.	Error in E.N.P.D.
URANUS.							
Jan. 29 to Feb. 2	3	3	January 31	+10ˢ·717	+33″·67	+156″·49	−11″·61
Feb. 18 to March 9	5	5	March 1	+10·680	+32·90	+155·59	−11·39
April 2 to April 20	11	11	April 13	+10·396	+30·90	+150·99	−11·37
NEPTUNE.							
Jan. 5 to Jan. 25	4	4	January 15	− 0·035	− 0·58	− 0·28	− 0·72
Sept. 18 to Oct. 7	7	7	September 29	− 0·057	+ 0·68	− 1·02	+ 0·35
Oct. 12 to Oct. 22	4	4	October 16	− 0·143	+ 0·47	− 2·15	− 0·28
Nov. 8 to Nov. 16	2	2	November 12	− 0·125	+ 2·07	− 2·45	+ 1·30
Dec. 1 to Dec. 31	6	6	December 18	− 0·067	+ 0·58	− 1·13	+ 0·19

Errors of the Tabular Heliocentric Places of the Planets.

Mercury.

Day, 1875.		Error of the Tables of the Planet in Geocentric Longitude, expressed in terms of Error of Heliocentric Longitude of Planet (δL), of Error of Projection of Radius Vector of Planet ($\delta \rho$), of Error of Earth's Longitude (δl), and of Error of Earth's Radius Vector (δr). ($\delta \rho$ and δr are expressed in terms of the Earth's Mean Distance from the Sun.)								Error of Tables in Hel. E. P. D.
		"			"		"		"	"
February	1	+ 2·63	=	+ 0·229	δL	+ 96347	$\delta \rho$	+ 0·771	δl − 34314 δr	− 0·16
May	17	+ 4·05	=	+ 0·207		+ 91037		+ 0·794	− 27905	+ 10·17
June	3	+ 3·31	=	+ 0·007		+ 219038		+ 0·992	− 85408	+ 1·57
July	30	− 0·19	=	− 0·013		− 217886		+ 1·013	+ 72063	− 1·07
August	16	+ 1·03	=	+ 0·232		− 52171		+ 0·769	+ 16518	− 0·44
September	7	+ 0·84	=	+ 0·270		+ 85564		+ 0·730	− 36894	+ 2·47
November	16	− 2·45	=	+ 0·089		− 193865		+ 0·911	+ 66299	+ 0·45

Venus.

January	24	− 0·96	=	− 0·463	δL	−401828	$\delta \rho$	+ 1·458	δl +292820 δr	+ 1·18
March	3	+ 0·56	=	+ 0·117		−263245		+ 0·882	+191686	+ 1·47
	29	+ 0·05	=	+ 0·252		−199297		+ 0·748	+144864	0·00
April	19	+ 0·92	=	+ 0·310		−160835		+ 0·690	+116472	− 0·33
May	13	+ 1·14	=	+ 0·351		−125971		+ 0·649	+ 90588	+ 1·28
June	6	+ 0·34	=	+ 0·376		− 97288		+ 0·624	+ 69493	+ 1·26
	27	+ 2·37	=	+ 0·391		− 75441		+ 0·609	+ 53667	+ 1·28
July	24	+ 0·26	=	+ 0·404		− 50283		+ 0·596	+ 35662	− 0·40
August	16	+ 0·64	=	+ 0·411		− 30464		+ 0·589	+ 21664	+ 1·90
September	4	+ 2·45	=	+ 0·415		− 14887		+ 0·585	+ 10612	+ 0·52
October	12	− 0·01	=	+ 0·419		+ 14697		+ 0·581	− 10616	+ 2·79
November	16	+ 0·40	=	+ 0·417		+ 40736		+ 0·583	− 29943	− 0·26

Mars.

January	30	+ 1·05	=	+ 0·858	δL	− 80342	$\delta \rho$	+ 0·142	δl +132257 δr	+ 0·61
March	25	+ 2·11	=	+ 1·243		−129268		− 0·243	+202610	+ 0·29
April	25	+ 3·77	=	+ 1·771		−158292		− 0·771	+239789	+ 2·32
May	28	+ 2·52	=	+ 2·779		−127567		− 1·780	+186621	+ 0·57
June	18	+ 1·26	=	+ 3·303		− 13209		− 2·305	+ 19062	+ 0·77

MARS—*concluded.*

Day, 1875.		Error of the Tables of the Planet in Geocentric Longitude, expressed in terms of Error of Heliocentric Longitude of Planet (δL), of Error of Projection of Radius Vector of Planet ($\delta \rho$), of Error of Earth's Longitude (δl), and of Error of Earth's Radius Vector (δr). ($\delta \rho$ and δr are expressed in terms of the Earth's Mean Distance from the Sun.)					Error of Tables in Hel. E. P. D.
		"		"	"	"	"
July	6	+ 1·74	= + 3·175 δL	+114905 $\delta \rho$	− 2·178 δl	−162103 δr	+ 0·63
August	2	+ 2·71	= + 2·324	+215348	− 1·327	−298903	+ 0·63
	31	+ 2·20	= + 1·586	+213791	− 0·588	−294395	+ 0·56
September	20	+ 2·13	= + 1·284	+192486	− 0·285	−265125	+ 0·97
October	15	+ 2·19	= + 1·052	+163016	− 0·052	−226042	+ 0·06
November	14	+ 0·59	= + 0·890	+130831	+ 0·109	−184319	+ 0·51
December	21	+ 0·80	= + 0·777	+ 98249	+ 0·223	−142014	+ 1·25

CERES.

		"		"	"		"	"
January	6	−115·30	=	+ 1·584 δL	+ 8618 $\delta \rho$		+15·16	− 2776 $\delta \rho$
	14	−110·50	=	+ 1·548	+ 16244		+15·73	− 2977
	23	−107·68	=	+ 1·490	+ 23455		+14·66	− 3105

JUPITER.

		"		"	"		"	'
March	24	− 10·75	=	+ 1·197 δL	− 3672 $\delta \rho$	− 0·197 δl	+ 20046 δr	+ 3·72
April	22	− 12·14	=	+ 1·225	+ 863	− 0·225	− 4701	+ 3·50
May	18	− 11·38	=	+ 1·184	+ 4659	− 0·184	− 25127	+ 3·88
June	5	− 11·32	=	+ 1·130	+ 6387	− 0·130	− 34271	+ 4·17

SATURN.

July	26	− 10·21	=	+ 1·106 δL	− 870 $\delta \rho$	− 0·106 δl	+ 8376 δr	− 7·25
August	20	− 8·45	=	+ 1·114	+ 197	− 0·114	− 1885	− 8·99
September	11	− 4·64	=	+ 1·100	+ 1087	− 0·100	− 10644	− 8·31
October	7	− 1·75	=	+ 1·063	+ 1840	− 0·063	− 18139	− 8·21
November	14	− 0·79	=	+ 0·997	+ 2119	+ 0·003	− 21014	− 9·01

URANUS.

Day, 1875.	Error of the Tables of the Planet in Geocentric Longitude, expressed in terms of Error of Heliocentric Longitude of Planet (δL), of Error of Projection of Radius Vector of Planet ($\delta \rho$), of Error of Earth's Longitude (δl), and of Error of Earth's Radius Vector (δr). ($\delta \rho$ and δr are expressed in terms of the Earth's Mean Distance from the Sun.)	Error of Tables in Hel. E. P. D.
	$''$ $''$ $''$ $''$ $''$	$''$
January 31	$+156{\cdot}49 = +1{\cdot}056\,\delta L - 24\,\delta\rho - 0{\cdot}056\,\delta l + 429\,\delta r$	$-10{\cdot}99$
March 1	$+155{\cdot}59 = +1{\cdot}050 + 297 - 0{\cdot}050 - 5583$	$-10{\cdot}84$
April 13	$+150{\cdot}99 = +1{\cdot}017 + 590 - 0{\cdot}017 - 10836$	$-11{\cdot}16$

NEPTUNE.

January 15	$-0{\cdot}28 = +1{\cdot}002\,\delta L + 230\,\delta\rho - 0{\cdot}002\,\delta l - 6924\,\delta r$	$-0{\cdot}72$
September 29	$-1{\cdot}02 = +1{\cdot}031 - 108 - 0{\cdot}031 + 3175$	$+0{\cdot}34$
October 16	$-2{\cdot}15 = +1{\cdot}034 - 40 - 0{\cdot}034 + 1142$	$-0{\cdot}28$
November 12	$-2{\cdot}45 = +1{\cdot}032 + 75 - 0{\cdot}032 - 2274$	$+1{\cdot}26$
December 18	$-1{\cdot}13 = +1{\cdot}019 + 191 - 0{\cdot}019 - 5835$	$+0{\cdot}19$

ERRORS of the MOON'S TABULAR PLACE in RIGHT ASCENSION, NORTH POLAR DISTANCE, LONGITUDE, and ECLIPTIC NORTH POLAR DISTANCE.

Day, 1875.		Errors of Moon's Tabular Place from Observations with Transit-Circle.				Observer.	Errors of Moon's Tabular Place from Observations with Altazimuth.				Observer.
		In R.A.	In N.P.D.	In Longitude.	In E.N.P.D.		In R.A.	In N.P.D.	In Longitude.	In E.N.P.D.	
		s	"	"	"		s	"	"	"	
Jan.	1	+ 0·49	+ 4·21	+ 8·02	+ 1·78	E	+ 0·35	+ 3·53	+ 5·89	+ 1·77	AD
	13	+ 0·40	− 2·29	+ 6·42	+ 0·26	C	+ 0·71	− 3·02	+10·99	+ 1·42	L
	15	+ 0·54	− 4·25	+ 8·79	− 1·43	L	+ 0·20	− 4·22	+ 4·15	− 3·01	C
	16						+ 0·45	− 5·12	+ 7·48	− 3·25	M
	17						+ 0·18	− 2·71	+ 2·93	− 2·20	L
	18	+ 0·59	+ 0·10	+ 7·85	+ 0·65	S	+ 0·76	− 2·64	+10·35	− 1·79	L
	19						+ 0·42	− 0·09	+ 5·57	− 0·28	C
	20	+ 0·87	+ 3·60	+12·11	+ 1·74	L	+ 0·65	+ 0·54	+ 8·70	− 0·71	J
	21	+ 0·76	+ 4·70	+11·34	+ 1·92	C	+ 0·60	+ 1·76	+ 8·44	− 0·32	AD
	22						+ 0·79	+ 0·25	+10·69	− 3·10	L
	24						+ 0·99	+ 4·01	+15·09	− 1·93	WC
	25						+ 0·35	+ 2·65	+ 5·87	+ 0·34	AD
	29						+ 0·57	+ 1·68	+ 8·22	− 0·66	AD
	30	+ 0·39	+ 1·85	+ 5·65	+ 0·64	AD	+ 0·45	− 0·11	+ 6·04	− 1·46	L
	31						+ 0·20	+ 1·61	+ 2·90	+ 1·23	C
Feb.	1						+ 0·57	+ 6·96	+ 7·86	+ 6·64	J
	12						+ 0·34	+ 0·32	+ 4·52	+ 1·63	S
	14						+ 0·48	+ 0·85	+ 6·30	+ 1·55	L
	15	+ 0·70	− 0·83	+ 9·27	− 0·89	C	+ 0·31	− 4·98	+ 4·15	− 4·95	AD
	16						+ 0·87	+ 3·02	+11·84	+ 1·81	W
	17						+ 0·48	+ 1·82	+ 6·75	+ 0·49	C
	18	+ 0·66	+ 5·11	+10·35	+ 2·19	G	+ 0·71	+ 2·00	+10·06	− 0·87	M
	21	+ 0·60	+ 2·65	+ 9·29	− 1·13	AD	+ 0·32	+ 4·33	+ 6·10	+ 2·10	C
	22	+ 0·53	+ 4·22	+ 8·98	+ 0·73	J	+ 0·28	+ 5·60	+ 6·08	+ 3·49	L
	23						+ 0·16	− 0·98	+ 1·83	− 1·82	AD
March	9						+ 0·06	− 3·96	+ 2·36	− 3·31	WC
	10						+ 0·24	− 4·13	+ 4·76	− 2·61	C
	11						+ 0·76	− 4·64	+11·73	− 1·17	AD
	14	+ 0·63	− 0·20	+ 8·35	+ 0·03	W	+ 0·60	+ 4·19	+ 7·86	+ 4·36	C
	15	+ 0·72	+ 0·82	+ 9·60	+ 0·03	L	+ 0·66	− 0·48	+ 8·69	− 1·21	AD
	17		+ 2·97			AD					
	18	+ 0·66	+ 4·70	+10·47	+ 1·32	L	+ 0·32	− 1·29	+ 3·88	− 2·71	C
	19	+ 0·39				G	+ 0·61	+ 3·46	+ 9·57	− 0·05	AD
	20	+ 0·61	+ 5·53	+10·53	+ 1·53	C	+ 0·40	+ 4·61	+ 7·29	+ 1·92	L
	21	+ 0·50	+ 5·72	+ 9·17	+ 2·27	AD	+ 0·53	+ 5·26	+ 9·39	+ 1·65	J
	22	+ 0·57	+ 2·50	+ 8·83	− 1·00	L	+ 0·17	+ 6·83	+ 5·01	+ 5·30	C
	23						+ 0·42	+ 5·36	+ 7·75	+ 2·69	AD
	24						+ 0·60	+ 3·79	+ 9·40	+ 0·81	L
	26						+ 0·45	− 2·95	+ 5·45	− 4·12	L
	27						+ 0·58	+ 0·36	+ 7·76	− 0·55	AD
April	11						+ 1·09	− 3·02	+14·20	− 4·02	AD
	12	+ 0·85	+ 1·36	+11·47	− 1·43	L	+ 0·67	+ 0·52	+ 8·96	− 0·94	C
	13	+ 0·85	+ 2·37	+11·92	− 0·57	AD	+ 0·66	+ 3·80	+ 9·76	+ 1·40	C
	14	+ 0·54	+ 2·19	+ 7·95	− 0·33	T	+ 0·59	+ 2·94	+ 8·84	+ 0·21	L
	15	+ 0·61	+ 5·39	+10·23	+ 1·82	C	+ 0·51	+ 2·84	+ 7·94	0·00	AD
	16	+ 0·46	+ 4·72	+ 8·12	+ 1·71	G	+ 0·37	+ 7·37	+ 2·21	+ 4·69	J
	17	+ 0·40	+ 2·78	+ 6·61	+ 0·16	AD	+ 0·69	+ 5·65	+11·74	+ 1·08	L
	18	+ 0·24	− 0·35	+ 3·17	− 1·74	T	+ 0·46	+ 3·72	+ 7·81	+ 0·70	C
	19	+ 0·58	+ 4·99	+ 9·84	+ 1·41	L	+ 0·79	− 2·17	+10·05	− 6·46	AD
	20	+ 0·39	+ 3·39	+ 6·49	+ 1·25	C	+ 0·63	+10·87	+12·41	−13·39	J
	23	+ 0·41	+ 2·95	+ 5·91	+ 2·09	L	+ 0·78	+ 4·85	+11·15	+ 3·23	AD

Remarks on TRANSIT-CIRCLE Observations :—January 15. Very cloudy in N.P.D., only two contacts observed.

Remarks on ALTAZIMUTH Observations :—January 24 and February 14. Cloudy, the limb faint; the Moon was observed in one position only. No determination of zero of Azimuth. April 11. Cloudy. The Moon was observed in one position only. No determination of zero of Azimuth.

ERRORS of the MOON'S TABULAR PLACE—*continued.*

Day, 1875.	Errors of Moon's Tabular Place from Observations with Transit-Circle.				Observer.	Errors of Moon's Tabular Place from Observations with Altazimuth.				Observer.
	In R.A.	In N.P.D.	In Longitude.	In E.N.P.D.		In R.A.	In N.P.D.	In Longitude.	In E.N.P.D.	
	s	"	"	"		s	"	"	"	
April 24		+ 3·63			AD	+ 0·63	− 3·80	+ 8·17	− 4·20	C
25	+ 0·59	+ 3·39	+ 7·66	+ 3·71	C	+ 0·50	+ 6·92	+ 6·32	+ 7·19	L
27						+ 0·89	+ 3·72	+11·02	+ 6·27	AD
29						+ 0·59	− 3·30	+ 9·13	− 0·16	L
May 7						+ 1·02	+ 6·86	+12·87	+ 8·15	C
9						+ 1·04	+ 8·07	+14·87	+ 6·10	C
10						+ 0·99	+ 5·49	+14·44	+ 2·27	L
11	+ 0·66	+ 3·40	+ 9·86	+ 0·50	T	+ 0·69	+ 6·40	+11·18	+ 3·24	C
12	+ 0·65	+ 5·40	+10·69	+ 1·79	L	+ 0·80	+ 7·34	+13·42	+ 2·85	AD
13	+ 0·40	+ 2·99	+ 6·61	+ 0·52	T	+ 0·53	+ 6·36	+ 9·68	+ 2·89	C
14	+ 0·20	+ 3·29	+ 4·05	+ 1·84	P	+ 0·31	+ 3·50	+ 5·66	+ 1·37	W
15	+ 0·37	+ 5·64	+ 7·34	+ 2·98	AD	+ 0·36	+ 4·55	+ 3·16	+ 2·04	L
16	+ 0·56	+ 5·84	+ 9·94	+ 2·21	T	+ 0·42	+ 4·06	+ 7·34	+ 1·36	C
17	+ 0·39	+ 6·05	+ 7·49	+ 3·63	L	+ 0·44	+ 3·17	+ 7·16	+ 0·67	AD
18	+ 0·58	+ 4·09	+ 9·17	+ 1·32	C	+ 0·47	+ 5·48	+ 8·13	+ 3·09	T
19	+ 0·47	+ 3·27	+ 7·17	+ 1·53	AD	+ 0·49	+ 2·63	+ 7·30	+ 0·79	J
21	+ 0·45	+ 0·52	+ 6·03	+ 0·02	G	+ 0·36	+ 6·83	+ 5·41	+ 6·37	AD
22	+ 0·57	+ 2·55	+ 7·51	+ 2·65	C	+ 0·79	+ 9·05	+10·40	+ 9·12	T
23						+ 0·51	− 0·27	+ 6·77	+ 0·38	L
24	+ 0·53	+ 2·18	+ 6·60	+ 3·57	L	+ 0·10	+ 1·89	+ 0·96	+ 2·12	C
25	+ 0·71	− 0·72	+ 9·70	+ 1·99	C	+ 0·62	+ 0·05	+ 8·28	+ 2·34	AD
26	+ 0·76	− 1·98	+10·92	+ 1·77	AD	+ 0·90	− 3·51	+13·28	+ 0·87	T
29	+ 0·68	− 5·07	+11·38	− 0·61	C	+ 0·48	− 7·58	+ 9·62	− 4·09	AD
30						+ 1·04	− 5·50	+16·43	+ 0·89	T
31						+ 0·68	− 5·96	+11·42	− 2·09	L
June 6						+ 0·84	+ 4·36	+12·05	+ 2·01	C
7						+ 1·05	+ 3·59	+15·07	− 0·61	L
8						+ 0·63	+ 5·35	+10·32	+ 1·98	C
9						+ 0·78	+ 4·69	+12·39	+ 0·05	AD
10	+ 0·68	+ 5·59	+11·52	+ 1·17	C	+ 0·57	+ 6·82	+10·52	+ 2·92	T
11	+ 0·61	+ 4·31	+10·12	+ 0·32	P	+ 0·29	+ 6·03	+ 6·39	+ 3·80	J
12		+ 4·84			T	+ 0·52	+ 3·93	+ 8·69	+ 0·62	C
15	+ 0·57	+ 4·50	+ 8·94	+ 2·16	AD	+ 0·42	+ 1·43	+ 6·08	− 0·26	L
16	+ 0·66	+ 4·32	+ 9·72	+ 2·44	T	+ 0·43	+ 3·59	+ 6·51	+ 2·30	J
17						+ 0·31	+ 7·45	+ 5·06	+ 6·89	WC
18	+ 0·31	+ 2·83	+ 4·17	+ 2·74	C	+ 0·21	− 0·98	+ 2·76	− 1·06	T
19						+ 0·52	− 4·13	+ 7·18	− 3·66	L
21	+ 0·61				L	+ 0·73	− 3·22	+10·55	− 0·65	J
22						+ 0·33	+ 1·63	+ 3·93	+ 2·99	T
23	+ 0·82	− 2·02	+11·89	+ 2·43	T	+ 0·30	− 2·08	+ 4·83	− 0·38	L
24	+ 0·86	− 3·53	+13·16	+ 1·73	L	+ 0·42	− 4·80	+ 7·61	− 2·02	C
25						+ 0·71	− 3·80	+11·28	+ 0·75	J
26						+ 0·70	− 5·04	+11·62	− 0·54	T
July 4						+ 0·94	+ 7·63	+14·45	+ 4·22	C
6						+ 0·76	+ 4·40	+11·95	+ 0·06	T
8						+ 0·50	+ 3·22	+ 8·16	− 0·04	C
10						+ 0·16	+ 3·64	+ 3·56	+ 2·49	T
11						+ 0·58	+ 1·58	+ 8·45	− 1·39	L
12	+ 0·49	+ 3·70	+ 7·72	+ 1·51	T	+ 0·22	+ 3·98	+ 4·14	+ 2·90	C
13						+ 0·59	− 0·24	+ 7·87	− 4·14	AD
19						+ 0·58	− 1·45	+ 8·22	+ 0·98	J

Remarks on TRANSIT-CIRCLE Observations:—April 25. Very faint in N.P.D. Only one contact observed. May 17. Cloudy; observed over two wires in R.A., only one contact in N.P.D.

Remarks on ALTAZIMUTH Observations:—July 13. Cloudy. The Moon was observed in one position only. No determination of zero of Azimuth.

ERRORS of the MOON'S TABULAR PLACE—*continued.*

Day, 1875.	Errors of Moon's Tabular Place from Observations with Transit-Circle.				Observer.	Errors of Moon's Tabular Place from Observations with Altazimuth.				Observer.
	In R. A.	In N. P. D.	In Longitude.	In E. N. P. D.		In R. A.	In N. P. D.	In Longitude.	In E. N. P. D.	
	s	"	"	"		s	"	"	"	
July 20						+ 0·51	− 4·90	+ 8·60	− 2·09	C
21	+ 0·87				WL	+ 0·53	− 2·96	+ 8·37	+ 0·23	AD
22						+ 0·48	− 1·67	+ 7·26	+ 1·31	T
23						+ 0·48	− 6·05	+ 9·01	− 2·71	L
24	+ 0·93	− 3·71	+14·13	+ 1·66	L	+ 0·26	− 2·46	+ 4·50	− 0·83	C
25	+ 0·83	− 4·35	+12·73	− 0·22	C	+ 0·56	− 7·39	+10·17	− 4·18	AD
26	+ 0·86	− 4·10	+12·66	− 0·82	AD	+ 0·77	− 4·77	+11·75	− 1·53	J
27						+ 0·76	− 3·64	+10·90	− 1·51	L
28						+ 0·95	− 0·85	+12·69	+ 0·28	C
29						+ 1·15	+ 0·11	+15·23	− 0·32	AD
August 4						+ 0·94	+ 6·27	+15·40	+ 0·18	AD
6						+ 0·17	+ 4·85	+ 4·18	+ 3·52	T
7						+ 0·63	+ 0·90	+ 8·93	− 2·39	L
8						+ 0·24	− 2·83	+ 2·38	− 3·75	AD
11						+ 0·56	− 1·83	+ 7·27	− 2·49	T
12						+ 0·79	− 2·01	+10·45	− 2·01	WC
13	+ 0·42	+ 3·08	+ 5·24	+ 3·64	T	+ 0·58	− 0·98	+ 7·78	− 0·18	AD
14	+ 0·42	− 2·42	+ 6·06	− 1·27	P	+ 0·37	+ 3·29	+ 5·54	+ 4·17	W
15	+ 0·57	− 2·14	+ 8·23	+ 0·10	AD	+ 0·16	+ 2·51	+ 1·47	+ 3·01	T
16	+ 0·67	− 5·30	+10·84	− 1·78	RP	+ 0·72	− 6·87	+11·99	− 3·14	L
18	+ 0·92	− 2·18	+13·49	+ 3·42	L	+ 0·69	− 0·14	+10·01	+ 3·91	W
20	+ 0·98	− 5·20	+15·45	+ 0·72	T	+ 0·68	− 4·53	+11·10	− 0·29	WC
21	+ 0·99	− 3·29	+14·63	+ 1·82	WC	+ 0·75	− 7·73	+13·00	− 3·34	AD
22	+ 0·95	− 3·77	+13·90	+ 0·15	AD	+ 0·57	− 5·28	+ 9·32	− 2·60	J
23						+ 0·61	− 4·48	+ 9·18	− 2·50	T
24						+ 0·91	− 4·36	+12·64	− 2·83	W
25						+ 1·02	− 2·07	+13·52	− 1·89	AD
26						+ 1·13	+ 0·66	+15·02	− 0·89	J
Sept. 3						+ 0·17	+ 1·82	+ 3·00	+ 0·78	AD
6	+ 0·40				C	+ 0·21	+ 3·74	+ 3·58	+ 3·07	AD
7	+ 0·36	+ 3·35	+ 5·22	+ 2·70	AD	+ 0·17	+ 4·17	+ 2·80	+ 3·84	WC
8	+ 0·17	+ 0·99	+ 2·28	+ 0·91	WL	+ 0·32	− 2·03	+ 4·16	− 2·18	C
9	+ 0·43	− 0·75	+ 5·73	− 0·39	P	+ 0·18	+ 6·67	+ 2·00	+ 6·79	AD
10	+ 0·37	− 0·10	+ 4·92	+ 0·67	C	+ 0·24	+ 0·10	+ 3·17	+ 1·60	J
11						+ 0·15	+ 0·19	+ 1·96	+ 0·67	T
12						+ 0·33	+ 0·62	+ 4·25	+ 1·99	C
14	+ 0·53	− 2·91	+ 8·40	+ 0·38	C	+ 0·61	− 5·69	+10·55	− 1·78	W
15	+ 0·76	− 5·56	+12·67	− 0·56	AD	+ 0·55	− 8·74	+11·04	− 4·73	T
16						+ 0·19	+ 2·59	+ 1·60	+ 3·50	C
17	+ 1·20	− 5·71	+18·46	+ 0·96	WL	+ 0·85	− 6·84	+14·16	− 1·78	AD
18	+ 1·12	− 6·67	+17·21	− 1·48	C	+ 0·65	− 5·84	+10·71	− 2·53	L
19	+ 1·13	− 3·99	+16·05	− 0·33	L	+ 1·30	− 6·69	+19·07	− 2·19	AD
20						+ 0·89	− 3·45	+12·40	− 1·47	C
26						+ 0·69	+ 1·62	+10·01	− 2·27	L
Oct. 6	+ 0·27	+ 3·74	+ 3·49	+ 3·82	AD	+ 0·50	− 2·23	+ 6·65	− 2·09	L
8	+ 0·20	+ 0·10	+ 2·64	+ 0·66	C	+ 0·37	+ 1·79	+ 4·56	+ 2·75	AD
9	+ 0·55	− 2·61	+ 8·10	− 0·38	L	+ 0·32	− 2·18	+ 4·91	− 0·83	W
10						+ 0·16	− 1·79	+ 2·76	− 0·92	C
11	+ 0·48	− 2·79	+ 7·60	+ 0·06	P	+ 0·57	− 1·34	+ 8·27	+ 1·84	L
12	+ 0·46	− 1·55	+ 6·93	+ 1·29	C	+ 0·74	− 4·83	+12·06	− 0·10	AD
13	+ 0·67	− 4·95	+11·18	− 0·57	L	+ 0·67	− 3·77	+10·72	+ 0·53	J

Remarks on TRANSIT-CIRCLE Observations :—October 6. Scarcely visible in N.P.D. October 8. Very cloudy, observed over three wires in R.A.

Remarks on ALTAZIMUTH Observations:—August 12. Cloudy; the Moon was observed in one position only. No determination of zero of Azimuth. September 11 and October 10. Very cloudy; the Moon was observed in one position only. No determination of zero of Azimuth.

ERRORS of the MOON'S TABULAR PLACE—*concluded.*

Day, 1875.	Errors of Moon's Tabular Place from Observations with Transit-Circle.				Observer.	Errors of Moon's Tabular Place from Observations with Altazimuth.				Observer.
	In R.A.	In N.P.D.	In Longitude.	In E.N.P.D.		In R.A.	In N.P.D.	In Longitude.	In E.N.P.D.	
	s	"	"	"		s	"	"	"	
Oct. 15						+ 0·72	− 7·13	+12·25	− 3·14	L
16	+ 1·04	− 2·92	+14·77	+ 0·97	C	+ 0·97	− 8·19	+15·41	− 4·01	AD
17	+ 1·06	− 4·46	+14·88	− 1·99	J	+ 1·11	− 5·10	+15·84	− 1·99	RP
20	+ 1·39	+ 4·11	+19·17	+ 0·78	WC	+ 0·92	+ 5·22	+13·13	+ 2·97	AD
21	+ 1·12	+ 5·00	+16·28	+ 0·78	AD	+ 0·84	+ 0·71	+11·38	− 2·02	L
22						+ 0·94	+ 7·14	+14·90	+ 2·66	C
24						+ 1·01	+ 3·11	+15·05	− 2·99	AD
25						+ 0·65	+ 3·46	+10·32	− 0·71	L
Nov. 4										
6						+ 0·55	− 0·73	+ 7·44	+ 0·58	T
8	+ 0·45	− 4·28	+ 7·84	− 1·35	C	+ 0·32	+ 3·25	+ 3·28	+ 4·53	C
9	+ 0·64				L	+ 0·49	− 5·31	+ 8·77	− 2·10	T
11	+ 0·59	− 5·03	+ 9·88	− 1·61	L	+ 0·45	− 4·81	+ 8·10	− 1·72	L
12						+ 0·77	− 7·43	+13·28	− 2·76	AD
13						+ 0·49	− 4·66	+ 8·14	− 2·19	J
14	+ 0·82	− 0·46	+11·39	− 3·38	AD	+ 0·43	−12·81	+ 8·78	−11·06	T
15						+ 1·30	− 7·55	+18·21	− 5·35	RP
16	+ 1·05	+ 4·65	+14·52	+ 2·80	C	+ 1·14	+ 1·44	+15·05	+ 1·76	C
17	+ 1·07	+ 2·72	+14·92	− 0·80	AD	+ 1·58	− 0·14	+20·90	− 2·43	AD
18						+ 1·09	+ 1·45	+14·86	− 1·99	L
19	+ 1·05	+ 5·20	+16·15	− 0·61	RP	+ 1·74	+ 7·87	+25·70	+ 0·43	WC
21	+ 0·94	+ 8·65	+16·37	− 2·32	AD	+ 0·99	+ 4·85	+15·19	− 0·58	C
						+ 0·78	+ 5·52	+12·92	+ 0·43	L
Dec. 4										
5	+ 0·43	− 2·31	+ 6·76	+ 0·27	C	+ 0·62	− 0·53	+ 8·60	+ 2·60	W
6						+ 0·19	− 0·99	+ 2·97	+ 0·14	J
7	+ 0·53	− 7·39	+10·22	− 3·64	L	+ 0·08	− 1·95	+ 1·88	− 1·31	T
9						+ 0·54	− 2·81	+ 8·55	+ 0·63	C
12	+ 0·78	− 0·53	+10·36	+ 0·04	T	+ 0·73	− 5·41	+11·81	− 1·43	L
13	+ 0·93	+ 2·24	+12·48	+ 1·38	C	+ 1·21	− 4·80	+16·40	− 3·56	W
17						+ 1·18	− 1·22	+15·57	− 1·76	L
19		+ 7·87			T	+ 0·96	+ 4·26	+14·69	− 1·26	AD
20	+ 0·86	+ 5·69	+13·98	+ 0·37	G	+ 0·68	+ 9·92	+13·31	+ 5·04	C
22	+ 0·87	+ 4·49	+13·16	+ 0·49	L	+ 1·26	+ 2·62	+18·32	− 4·80	RP
23						+ 0·77	− 2·82	+ 9·56	− 6·08	T
						+ 0·71	+ 3·05	+10·31	+ 0·48	WC

Remarks on TRANSIT-CIRCLE Observations:—November 9. Limb scarcely visible; cloudy. No N.P.D. December 19. Very faint; cloudy. Only two contacts observed in N.P.D.

Remarks on ALTAZIMUTH Observations:—November 6 and 13. Cloudy; the Moon was observed in one position only. No determination of zero of Azimuth. November 18. Very cloudy. The Zenith Distance of the Moon was observed in one position only over three wires, and the result is discordant. No determination of zero of Azimuth.

ROYAL OBSERVATORY, GREENWICH.

OBSERVATIONS OF γ DRACONIS

WITH THE

REFLEX ZENITH TUBE;

AND

REDUCTION OF THE OBSERVATIONS.

1875.

Day and Hour of Observation, 1875.	Observer.	Position of Mic. A.	Wire used.	Micrometer Readings. A	Micrometer Readings. B	Level Readings.		Equivalents for Level.	Sum of Equivalents for Wire, for Micrometer-Readings, and for Level Readings.	Assumed Instrumental Constant.	Star's Z.D. North from Observation.	Correction to Mean Z.D. North for 1875, Jan. 1.	Mean Zenith Distance North, 1875, Jan. 1, from each Observation.	Concluded Mean Zenith Distance North, 1875, Jan. 1.
				r	r	div.	div.	"	"	"	"	"	"	"
March d h 9. 19	G	Left	15	75·000	23·028	32·0	92·2	0·80	303·31	230·55	72·76	+28·57	101·33	101·33
May 21. 14	G	Left	15	75·108	23·349	16·8	74·0	0·59	310·30		79·75	+18·01	97·76	97·94
" "		Right	14	78·573	23·349	25·2	83·0	0·70	150·45		80·10		98·11	
May 22. 14	C	Left	15	76·000	22·415	19·0	77·2	0·62	309·62		79·07	+17·70	96·77	97·37
" "		Right	14	79·501	22·415	25·3	83·5	0·70	150·35		80·20		97·97	
May 24. 14	T	Left	15	81·000	17·490	20·1	77·1	0·63	310·89		80·34	+17·08	97·42	96·71
" "		Right	14	84·502	17·490	26·8	83·9	0·72	151·64		78·91		95·99	
May 31. 13	AD	Right	14	84·035	17·800	26·0	84·0	0·71	148·99		81·56	+14·91	96·47	97·02
" "		Left	15	84·035	14·593	19·0	77·0	0·62	313·20		82·65		97·56	
June 1. 13	T	Left	15	84·000	14·587	19·0	76·0	0·61	312·50		81·95	+14·59	96·54	96·32
" "		Right	14	87·250	14·587	27·4	84·4	0·72	149·04		81·51		96·10	
June 3. 13	P	Right	14	86·668	15·000	27·9	82·8	0·72	146·21		84·34	+13·95	98·29	98·29
June 8. 13	T	Left	15	85·000	13·586	17·6	73·2	0·59	312·46		81·91	+12·35	94·26	94·21
" "		Right	14	88·232	13·586	29·0	84·8	0·74	148·74		81·81		94·16	
June 11. 13	P	Right	14	88·257	13·585	86·6	30·0	0·75	149·15		81·40	+11·38	92·78	95·84
" "		Left	15	88·257	10·662	18·0	76·0	0·61	318·07		87·52		98·90	
June 16. 12	T	Left	15	88·000	10·858	19·4	77·2	0·62	317·05		86·50	+ 9·73	96·23	97·43
" "		Right	14	90·540	10·858	25·0	83·0	0·70	141·65		88·90		98·63	
June 18. 12	C	Left	15	91·000	8·006	19·6	78·8	0·63	319·55		89·00	+ 9·07	98·07	97·49
" "		Right	14	93·456	8·006	24·0	83·0	0·69	142·72		87·83		96·90	
June 19. 12	L	Left	15	94·000	4·937	20·2	78·1	0·63	318·39		87·84	+ 8·74	96·58	96·72
" "		Right	14	96·507	4·937	26·4	83·6	0·71	142·44		88·11		96·85	
June 21. 12	L	Left	15	97·000	2·020	22·3	80·4	0·66	319·82		89·27	+ 8·09	97·36	97·36
June 22. 12	C	Left	16	83·000	3·164	20·6	78·0	0·64	322·08		91·53	+ 7·77	99·30	99·12
" "		Right	15	85·100	3·164	25·0	82·7	0·70	139·38		91·17		98·94	
June 24. 12	WL	Left	16	85·100	0·996	22·2	77·9	0·65	320·94		90·39	+ 7·13	97·52	97·70
" "		Right	15	87·295	0·996	24·6	80·5	0·68	139·81		90·74		97·87	
June 25. 12	G	Right	15	87·545	1·000	26·8	82·0	0·70	144·08		86·47	+ 6·81	93·28	93·28
June 26. 12	W	Left	15	74·328	24·734	21·6	77·5	0·64	320·50		89·95	+ 6·49	96·44	97·20
" "		Right	14	76·511	24·734	25·1	81·0	0·69	139·08		91·47		97·96	
July 1. 11	AD	Right	14	76·351	24·800	22·0	78·5	0·65	137·47		93·08	+ 4·91	97·99	97·81
" "		Left	15	76·351	22·873	24·5	81·0	0·68	323·27		92·72		97·63	
July 6. 11	C	Left	15	76·000	23·276	26·0	81·2	0·69	324·15		93·60	+ 3·41	97·01	98·79
" "		Right	14	77·630	23·276	26·0	82·2	0·70	133·40		97·15		100·56	

The numerical value of the Sum of Equivalents in column 10, $= w +$ (sum of Micrometer Readings $- 80^r$) $\times$ $16''\cdot780$ + sum of Level Readings $\times$ $0''\cdot00646$; where w, for wire 14, $= -3'.38''\cdot10$; for wire 15, $=0$, for wire 16, $= +3'.38''\cdot00$. The numerical difference between this value and that of the Instrumental Constant is the Star's Z.D. North.

May $21^d.\ 14^h$. The readings of micrometer A, Left and Right, were set down $85^r\cdot108$ and $81^r\cdot573$ respectively.
June $18^d.\ 12^h$. Star very faint, but steady.
June $21^d.\ 12^h$. Image very diffused.
June $24^d.\ 12^h$. The reading of micrometer A, Left, has been supplied from the last observation ($85^r\cdot100$).
June $25^d.\ 12^h$. Micrometer B not moveable after reversion.
June $26^d.\ 0^h$. The micrometers A and B were so adjusted that the index should point to wires 14 and 15.
June $26^d.\ 0^h$. The reading of micrometer B, Left and Right, was set down $19^r\cdot734$.

Day and Hour of Observation, 1875.	Observer.	Position of Mic. A.	Wire used.	Micrometer Readings. A	Micrometer Readings. B	Level Readings.		Equivalents for Level.	Sum of Equivalents for Wire, for Micrometer-Readings, and for Level Readings.	Assumed Instrumental Constant.	Star's Z.D. North from Observation.	Correction to Mean Z.D. North for 1875, Jan. 1.	Mean Zenith Distance North, 1875, Jan. 1, from each Observation.	Concluded Mean Zenith Distance North, 1875, Jan. 1.
				r	r	div.	div.	"	"	"	"	"	"	"
d h														
July 8. 11	T	Right	14	77·990	23·000	25·0	82·0	0·69	134·80	230·55	95·75	+ 2·81	98·56	98·66
" "		Left	15	77·990	21·430	20·8	77·4	0·63	326·50		95·95		98·76	
July 12. 10	T	Left	15	78·000	21·500	18·4	75·8	0·61	327·82		97·27	+ 1·65	98·92	99·50
" "		Right	14	79·330	21·500	26·8	84·0	0·71	132·13		98·42		100·07	
July 26. 10	C	Left	15	76·000	23·709	24·0	81·5	0·68	331·40		100·85	− 2·15	98·70	98·45
" "		Right	14	77·010	23·709	20·7	78·5	0·64	130·21		100·34		98·19	
July 28. 9	T	Right	14	77·010	23·709	23·4	78·8	0·66	130·23		100·32	− 2·67	97·65	99·34
" "		Left	15	77·010	22·870	23·6	79·0	0·66	334·24		103·69		101·02	
July 29. 9	L	Left	15	77·000	22·694	22·8	78·7	0·66	331·13		100·58	− 2·93	97·65	97·85
" "		Right	14	77·986	22·694	23·4	78·6	0·66	129·57		100·98		98·05	
July 31. 9	J	Right	14	77·926	22·701	25·8	81·4	0·69	128·72		101·83	− 3·41	98·42	97·91
" "		Left	15	77·926	21·783	20·4	76·4	0·63	331·35		100·80		97·39	
August 4. 9	T	Left	15	78·000	21·886	17·4	74·0	0·59	334·27		103·72	− 4·29	99·43	99·63
" "		Right	14	78·603	21·886	28·0	85·0	0·73	126·43		104·12		99·83	
August 14. 8	P	Left	15	78·466	21·575	26·0	80·0	0·69	336·98		106·43	− 6·29	100·14	101·68
" "		Right	14	78·597	21·575	23·0	77·0	0·65	121·04		109·51		103·22	
August 16. 8	RP	Left	15	78·598	21·505	25·5	78·2	0·67	338·00		107·45	− 6·65	100·80	99·91
" "		Right	14	78·896	21·505	24·8	77·0	0·66	124·89		105·66		99·01	
August 23. 8	G	Right	14	79·003	21·503	24·0	78·0	0·66	126·65		103·90	− 7·71	96·19	97·61
" "		Left	15	79·003	21·057	25·0	80·8	0·68	337·29		106·74		99·03	
August 24. 8	RP	Left	15	79·000	20·908	23·7	78·5	0·66	334·71		104·16	− 7·84	96·32	97·60
" "		Right	14	79·430	20·908	25·1	79·8	0·68	123·84		106·71		98·87	
August 25. 8	T	Left	15	78·933	21·061	23·6	78·8	0·66	336·16		105·61	− 7·97	97·64	97·94
" "		Right	14	79·308	21·061	23·8	78·6	0·66	124·35		106·20		98·23	
August 30. 7	C	Left	15	79·000	20·985	23·0	79·5	0·66	336·00		105·45	− 8·58	96·87	98·62
" "		Right	14	79·257	20·985	22·6	79·5	0·66	122·22		108·33	− 7·97	100·36	
August 31. 7	RP	Left	15	80·000	19·972	21·5	77·5	0·64	335·77		105·22	− 8·67	96·55	97·68
" "		Right	14	80·319	19·972	25·9	81·8	0·69	123·08		107·47		98·80	
September 3. 7	W	Right	14	80·428	19·978	23·8	79·9	0·67	124·98		105·57	− 8·94	96·63	96·91
" "		Left	15	80·428	19·583	22·8	73·5	0·62	336·41		105·86	− 8·67	97·19	
September 6. 7	C	Left	15	80·000	20·185	22·0	77·6	0·64	339·34		108·79	− 9·21	99·58	98·65
" "		Right	14	80·140	20·185	24·0	80·5	0·68	123·63		106·92		97·71	
September 7. 7	AD	Right	14	80·205	20·200	25·5	81·0	0·69	124·98		105·57	− 9·30	96·27	97·12
" "		Left	15	80·205	19·889	21·0	76·5	0·63	337·81		107·26		97·96	
September 9. 7	P	Left	15	80·170	19·971	22·0	76·5	0·64	338·61		108·06	− 9·43	98·63	99·15
" "		Right	14	80·223	19·971	27·0	82·0	0·70	121·46		109·09		99·66	

The numerical value of the Sum of Equivalents in column 10, $= w +$ (sum of Micrometer Readings $- 80^r$) $\times 16''\cdot780 +$ sum of Level Readings $\times 0''\cdot00646$; where w, for wire 14, $= -3'.38''\cdot10$; for wire 15, $= 0$. The numerical difference between this value and that of the Instrumental Constant is the Star's Z.D. North.

July 29d. 9h. Star extremely tremulous.
August 16d. 8h. The reading of Micrometer A, Left, was set down 79r·598.
August 25d. 8h. Very unsteady.
August 14d. 8h. Star very faint.
August 23d. 8h. Faint; cloudy.
September 7d. 7h. Image very bad.

Day and Hour of Observation, 1875.	Observer.	Position of Mic. A.	Wire used.	Micrometer Readings. A	Micrometer Readings. B	Level Readings.		Equivalent for Level.	Sum of Equivalents for Wire, for Micrometer-Readings, and for Level Readings.	Assumed Instrumental Constant.	Star's Z.D. North from Observation.	Correction to Mean Z.D. North for 1875, Jan. 1.	Mean Zenith Distance North, 1875, Jan. 1, from each Observation.	Concluded Mean Zenith Distance North, 1875, Jan. 1.
				r	r	div.	div.	″	″	″	″	″	″	″
d h														
September 14. 6	C	Left	15	80·000	20·076	20·6	76·6	0·63	337·51	230·55	106·96	− 9·63	97·33	97·67
,, ,,		Right	14	80·205	20·076	26·0	82·0	0·70	122·92		107·63		98·00	
September 15. 6	AD	Right	14	80·324	20·100	27·0	82·5	0·71	125·33		105·22	− 9·67	95·55	97·47
,, ,,		Left	15	80·324	19·878	19·0	75·0	0·61	339·60		109·05		99·38	
September 16. 6	RP	Left	15	80·000	20·026	18·5	73·0	0·59	336·63		106·08	− 9·71	96·37	98·55
,, ,,		Right	14	80·086	20·026	29·0	84·2	0·73	120·11		110·44		100·73	
September 17. 6	WL	Left	15	79·710	20·419	20·9	76·1	0·63	338·40		107·85	− 9·75	98·10	98·11
,, ,,		Right	14	79·846	20·419	32·8	82·0	0·74	122·69		107·86		98·11	
September 25. 6	AD	Right	14	79·832	20·400	23·0	80·0	0·67	122·06		108·49	− 9·72	98·77	100·09
,, ,,		Left	15	79·832	20·490	23·0	80·0	0·67	341·67		111·12		101·40	
October 8. 5	C	Left	15	82·000	18·104	23·6	81·8	0·68	338·03		107·48	− 8·99	98·49	98·49

The numerical value of the Sum of Equivalents in column 10, $= w$ + (sum of Micrometer Readings − 80ʳ) × 16″·780 + sum of Level Readings × 0″·00646; where w, for wire 14, $= -3'.38''.10$; for wire 15, $= 0$. The numerical difference between this value and that of the Instrumental Constant is the Star's Z.D. North.

September 15ᵈ. 6ʰ. Image very bad.

September 25ᵈ. 6ʰ. Cloudy.

October 8ᵈ. 5ʰ. Very faint.

ROYAL OBSERVATORY, GREENWICH.

OBSERVATIONS OF THE SOLAR ECLIPSE

OF

1875, September 28–29,

WITH THE

EQUATIONS DEDUCED FROM THE DIFFERENCES OF RIGHT ASCENSION

AND FROM

THE DIFFERENCES OF NORTH POLAR DISTANCE

OF THE

LIMBS AND CUSPS.

1875.

OBSERVATIONS of the BEGINNING of the SOLAR ECLIPSE, 1875, September 28–29.

Reference.	Instrument used.	Clock or Chronometer used.	Time noted.	Time by Sidereal Standard.	Sidereal Time.	Mean Solar Time.	Observer.
			h m s	h m s	h m s	h m s	
(*a*)	East Equatoreal	Earnshaw	11. 57. 32	11. 57. 5·1	11. 57. 23·3	23. 26. 7·1	D
(*b*)	Altazimuth	Graham 1	11. 59. 20	11. 58. 9·0	11. 58. 27·2	23. 27. 10·8	L
(*c*)	Simms 4 in. (No. 2)..	Brockbanks 436	11. 57. 1·5	11. 57. 12·0	11. 57. 30·2	23. 26. 13·8	AD
	C. (6 in.) Equatoreal .	Webb 5380	23. 27. 49	11. 58. 37·5	11. 58. 55·7	23. 27. 39·3	CBN
(*d*)	C. ($2\frac{1}{4}$ in.) Altazimuth	Dent 2015.....	11. 56. 27	11. 57. 2·0	11. 57. 20·2	23. 26. 4·0	JWN

(*a*.) Very tremulous. Power = 140. (*b*.) Time recorded uncertain. (*c*.) Power = 76. (*d*.) Probably from 10 to 20 seconds late.

OBSERVATIONS of the END of the SOLAR ECLIPSE, 1875, September 28–29.

Reference.	Instrument used.	Clock or Chronometer used.	Time noted.	Time by Sidereal Standard.	Sidereal Time.	Mean Solar Time.	Observer.
			h m s	h m s	h m s	h m s	
(*e*)	S. E. Equatoreal.....	Sidereal Standard...	13. 18. 28	13. 18. 28·0	13. 18. 46·1	0. 47. 16·6	WC
(*f*)	East Equatoreal	Earnshaw	13. 18. 55	13. 18. 28·1	13. 18. 46·2	0. 47. 16·7	D
(*g*)	Altazimuth	Graham 1	13. 19. 44	13. 18. 33·0	13. 18. 51·1	0. 47. 21·6	L
	Lee (6 in.) Equatoreal.	Frodsham 3449.....	0. 47. 9·2	13. 18. 15·0	13. 18. 33·1	0. 47. 3·6	GLT
	C. (6 in.) Equatoreal .	Webb 5380	0. 47. 7·0	13. 18. 7·5	13. 18. 25·6	0. 46. 56·1	CBN
(*h*)	C. ($2\frac{1}{4}$ in.) Altazimuth	Dent 2015.....	13. 17. 39	13. 18. 14	13. 18. 32·1	0. 47. 2·6	JWN

(*e*.) Power 295. (*f*.) Very cloudy. (*g*.) Good. (*h*.) Doubtful; the last contact may have occurred at the recorded time ± 7ˢ.

GEOCENTRIC QUANTITIES for the SOLAR ECLIPSE, 1875, September 28–29, INTERPOLATED from the NAUTICAL ALMANAC.

A' = Sun's Right Ascension.
S' = Sun's Semidiameter.
δ' = Moon's North Polar Distance.
P = Moon's Horizontal Equatoreal Parallax.
Δ' = Sun's North Polar Distance.
α' = Moon's Right Ascension.
s' = Moon's Semidiameter.
θ' = Moon's Hour-Angle West of the Meridian.

Greenwich Mean Solar Time.	A'	Δ'	S'	α'
d h m	h m s	° ′ ″	′ ″	h m s
September 28. 23. 25	12. 21. 39·22	92. 20. 39·69	16. 0·69	12. 19. 27·55
23. 33	....	....	16. 0·69	12. 19. 42·36
23. 41	12. 21. 41·63	92. 20. 55·28	16. 0·70	12. 19. 57·18
23. 49	....	....	....	12. 20. 12·00
23. 57	12. 21. 44·04	92. 21. 10·88	....	12. 20. 26·81
29. 0. 5	....	....	....	12. 20. 41·63
0. 13	12. 21. 46·45	92. 21. 26·47	....	12. 20. 56·45
0. 21	....	....	16. 0·70	12. 21. 11·26
0. 29	12. 21. 48·86	92. 21. 42·06	16. 0·71	12. 21. 26·07
0. 37	....	....	16. 0·71	12. 21. 40·88

Greenwich Mean Solar Time.	δ'	s'	P	θ'
d h m	° ′ ′	′ ″	′ ″	° ′ ″
September 28. 23. 25	91. 46. 56·29	15. 13·69	55. 47·41	− 5. 47. 52·80
23. 33	91. 48. 57·63	....	....	− 3. 51. 15·30
23. 41	91. 50. 58·95	....	....	− 1. 54. 37·80
23. 49	91. 53. 0·25	15. 13·56	55. 46·92	+ 0. 1. 59·55
23. 57	91. 55. 1·53	....	. .	+ 1. 58. 37·05
29. 0. 5	91. 57. 2·79	....	....	+ 3. 55. 14·40
0. 13	91. 59. 4·02	15. 13·43	55. 46·43	+ 5. 51. 51·90
0. 21	92. 1. 5·24	....	....	+ 7. 48. 29·40
0. 29	92. 3. 6·44	....	....	+ 9. 45. 6·90
0. 37	92. 5. 7·63	15. 13·29	55. 45·94	+ 11. 41. 44·55

APPARENT QUANTITIES for the SOLAR ECLIPSE, 1875, September 28–29.

A = Sun's Right Ascension. Δ = Sun's North Polar Distance. S = Sun's Semidiameter.
θ = Moon's Hour-Angle West of the Meridian. α = Moon's Right Ascension.
δ = Moon's North Polar Distance. s = Moon's Semidiameter.
a = Excess of Moon's Right Ascension above Sun's Right Ascension.

Greenwich Mean Solar Time.	A	Δ	S	θ	α	δ	s	a
d h m	h m s	° ′ ″	′ ″	° ′ ″	h m s	° ′ ″	′ ″	m s
Sept. 28. 23. 25	12. 21. 39·26	92. 20. 46·85	16. 0·69	5. 51. 26·09	12. 19. 41·76	92. 31. 52·21	15. 22·95	— 1. 57·50
23. 29	12. 21. 39·86	92. 20. 50·75	..	..	12. 19. 46·78	92. 32. 53·59	15. 22·94	— 1. 53·08
23. 33	12. 21. 40·46	92. 20. 54·65	16. 0·69	3. 53. 37·22	12. 19. 51·81	92. 33. 54·94	15. 22·93	— 1. 48·65
23. 37	12. 21. 41·05	92. 20. 58·55	16. 0·70	..	12. 19. 56·83	92. 34. 56·24	15. 22·90	— 1. 44·22
23. 41	12. 21. 41·65	92. 21. 2·44	..	1. 55. 48·19	12. 20. 1·86	92. 35. 57·48	15. 22·89	— 1. 39·79
23. 45	12. 21. 42·24	92. 21. 6·34	..	..	12. 20. 6·88	92. 36. 58·68	15. 22·87	— 1. 35·36
23. 49	12. 21. 42·84	92. 21. 10·24	..	0. 2. 0·77	12. 20. 11·91	92. 37. 59·84	15. 22·85	— 1. 30·93
23. 53	12. 21. 43·43	92. 21. 14·14	..	..	12. 20. 16·93	92. 39. 0·98	15. 22·83	— 1. 26·50
23. 57	12. 21. 44·03	92. 21. 18·04	..	1. 59. 49·88	12. 20. 21·96	92. 40. 2·11	15. 22·80	— 1. 22·07
29. 0. 1	12. 21. 44·62	92. 21. 21·94	..	..	12. 20. 26·98	92. 41. 3·18	15. 22·76	— 1. 17·64
0. 5	12. 21. 45·22	92. 21. 25·84	..	3. 57. 38·74	12. 20. 32·01	92. 42. 4·21	15. 22·72	— 1. 13·21
0. 9	12. 21. 45·82	92. 21. 29·74	..	..	12. 20. 37·04	92. 43. 5·22	15. 22·69	— 1. 8·78
0. 13	12. 21. 46·41	92. 21. 33·63	..	5. 55. 27·59	12. 20. 42·07	92. 44. 6·21	15. 22·65	— 1. 4·34
0. 17	12. 21. 47·01	92. 21. 37·53	..	..	12. 20. 47·10	92. 45. 7·14	15. 22·60	— 0. 59·91
0. 21	12. 21. 47·61	92. 21. 41·43	16. 0·70	7. 53. 16·16	12. 20. 52·14	92. 46. 8·01	15. 22·55	— 0. 55·47
0. 25	12. 21. 48·21	92. 21. 45·33	16. 0·71	..	12. 20. 57·19	92. 47. 8·85	15. 22·51	— 0. 51·02
0. 29	12. 21. 48·80	92. 21. 49·22	..	9. 51. 4·40	12. 21. 2·24	92. 48. 9·66	15. 22·46	— 0. 46·56
0. 33	12. 21. 49·40	92. 21. 53·12	..	..	12. 21. 7·30	92. 49. 10·46	15. 22·40	— 0. 42·10
0. 37	12. 21. 49·99	92. 21. 57·02	16. 0·71	11. 48. 52·37	12. 21. 12·36	92. 50. 11·24	15. 22·34	— 0. 37·63

OBSERVATIONS of DIFFERENCE of N.P.D. of UPPER and LOWER CUSPS.

No. of Series.	Clock Time of Observation.	Object.	Approx. N.P.D.	Approx. Hour Angle.	Readings of Microscopes. M.	Readings of Microscopes. N.	Reading of Declination Micrometer.	Concluded Circle Reading.	Correction for Refraction in N.P.D.	Concluded Circle Reading corrected for Refraction.
	h m s		° ′	h m s	° ′ ″	′ ″	rev.	° ′ ″	′ ″	° ′ ″
1	11. 58. 24	U. Cusp	92. 24	0. 21. 54	92. 32. 3·2	32. 18·9	1·149	92. 32. 33·02	1. 19·05	92. 33. 52·07
2	11. 59. 7	L. Cusp	92. 30	0. 21. 20	92. 36. 10·4	36. 23·2	1·698	92. 36. 49·54	1. 19·29	92. 38. 8·83
3	12. 0. 9	U. Cusp	92. 24	0. 20. 9	92. 31. 26·6	31. 39·2	1·582	92. 32. 3·35	1. 18·98	92. 33. 22·33
4	12. 0. 53	L. Cusp	92. 30	0. 19. 37	92. 37. 8·5	37. 22·7	1·568	92. 37. 45·68	1. 19·27	92. 39. 4·95
5	12. 1. 26	U. Cusp	92. 24	0. 18. 52	92. 31. 12·7	31. 28·0	1·470	92. 31. 48·66	1. 18·93	92. 33. 7·59
6	12. 1. 50	L. Cusp	92. 31	0. 18. 41	92. 37. 30·0	37. 44·5	1·796	92. 38. 11·70	1. 19·26	92. 39. 30·96
7	12. 2. 20	U. Cusp	92. 24	0. 17. 59	92. 30. 59·6	31. 14·6	1·629	92. 31. 38·52	1. 18·90	92. 32. 57·42
8	12. 2. 51	L. Cusp	92. 31	0. 17. 42	92. 38. 0·5	38. 13·6	1·591	92. 38. 37·46	1. 19·26	92. 39. 56·72
9	12. 3. 22	U. Cusp	92. 24	0. 16. 57	92. 31. 1·0	31. 13·6	1·375	92. 31. 33·80	1. 18·86	92. 32. 52·66
10	12. 3. 57	L. Cusp	92. 32	0. 16. 35	92. 38. 29·4	38. 41·2	1·328	92. 39. 0·55	1. 19·25	92. 40. 19·80
11	12. 4. 32	U. Cusp	92. 23	0. 15. 47	92. 31. 7·5	31. 19·0	0·705	92. 31. 26·76	1. 18·83	92. 32. 45·59
12	12. 5. 4	L. Cusp	92. 32	0. 15. 32	92. 39. 0·0	39. 13·2	1·043	92. 39. 26·26	1. 19·24	92. 40. 46·50
13	12. 5. 36	U. Cusp	92. 23	0. 14. 44	92. 30. 50·0	31. 3·4	1·355	92. 31. 22·84	1. 18·81	92. 32. 41·65
14	12. 6. 6	L. Cusp	92. 32	0. 14. 32	92. 39. 13·6	39. 26·4	1·398	92. 39. 46·50	1. 19·23	92. 41. 5·73
15	12. 6. 45	U. Cusp	92. 23	0. 13. 35	92. 30. 42·9	30. 57·1	1·569	92. 31. 20·29	1. 18·78	92. 32. 39·07
16	12. 7. 22	L. Cusp	92. 33	0. 13. 17	92. 39. 29·0	39. 39·5	1·773	92. 40. 8·00	1. 19·22	92. 41. 27·22
17	12. 7. 56	U. Cusp	92. 23	0. 12. 24	92. 30. 36·4	30. 49·4	1·872	92. 31. 19·08	1. 18·76	92. 32. 37·84
18	12. 8. 32	L. Cusp	92. 33	0. 12. 8	92. 39. 42·8	39. 56·7	1·896	92. 40. 25·84	1. 19·21	92. 41. 45·05
19	12. 9. 7	U. Cusp	92. 23	0. 11. 13	92. 30. 44·5	30. 56·0	1·602	92. 31. 21·19	1. 18·74	92. 32. 39·93
20	12. 9. 40	L. Cusp	92. 33	0. 11. 2	92. 40. 18·8	40. 31·1	1·155	92. 40. 47·28	1. 19·20	92. 42. 6·48
21	12. 10. 24	U. Cusp	92. 23	0. 9. 57	92. 30. 56·0	31. 8·0	1·014	92. 31. 21·51	1. 18·72	92. 32. 40·23
22	12. 11. 2	L. Cusp	92. 34	0. 9. 42	92. 40. 37·5	40. 52·5	1·106	92. 41. 6·34	1. 19·20	92. 42. 25·54
23	12. 11. 37	U. Cusp	92. 24	0. 8. 44	92. 31. 0·0	31. 12·4	0·863	92. 31. 22·77	1. 18·70	92. 32. 41·47
24	12. 12. 13	L. Cusp	92. 34	0. 8. 32	92. 41. 1·1	41. 15·6	0·698	92. 41. 21·73	1. 19·20	92. 42. 40·93
25	12. 13. 2	U. Cusp	92. 24	0. 7. 19	92. 31. 8·2	31. 22·3	0·525	92. 31. 25·26	1. 18·69	92. 32. 43·95
26	12. 13. 39	L. Cusp	92. 34	0. 7. 8	92. 41. 26·6	41. 41·3	0·346	92. 41. 40·45	1. 19·19	92. 42. 59·64
27	12. 14. 11	U. Cusp	92. 24	0. 6. 10	92. 31. 11·2	31. 24·4	0·707	92. 31. 31·34	1. 18·68	92. 32. 50·02
28	12. 14. 46	L. Cusp	92. 34	0. 6. 2	92. 41. 35·4	41. 50·5	0·583	92. 41. 54·02	1. 19·19	92. 43. 13·21
29	12. 15. 25	U. Cusp	92. 24	0. 4. 57	92. 31. 13·0	31. 26·3	0·940	92. 31. 37·69	1. 18·68	92. 32. 56·37

The adopted value of one revolution of the Declination Micrometer is 19″·379.
The correction for Runs of Microscopes for 5′ is −0″·68.
The error of the Sidereal Standard from series 1 to 4 was 18ˢ·27 slow, and from series 5 to 38, 18ˢ·26 slow.

TABULAR N.P.D. of each CUSP, with EFFECT of ERRORS of ELEMENTS.

Mean Solar Time.	Tabular N.P.D. of Cusp.	Coefficients of Small Errors of Elements.				
h m s	° ′ ″					
23. 27. 25·85	92. 24. 22·25	− 2·538 da	− 2·605 dS	− 2·991 ds	− 0·578 $d\Delta$	+ 1·579 $d\delta$
23. 28. 8·72	92. 29. 34·85	+ 2·237	+ 2·674	+ 2·286	+ 1·461	− 0·460
23. 29. 10·56	92. 23. 57·29	− 1·916	− 1·955	− 2·362	− 0·379	+ 1·379
23. 29. 54·45	92. 30. 24·72	+ 1·770	+ 2·207	+ 1·800	+ 1·317	− 0·317
23. 30. 27·35	92. 23. 45·37	− 1·656	− 1·685	− 2·108	− 0·304	+ 1·303
23. 30. 51·28	92. 30. 48·31	+ 1·608	+ 2·051	+ 1·632	+ 1·272	− 0·272
23. 31. 21·20	92. 23. 39·16	− 1·522	− 1·547	− 1·982	− 0·267	+ 1·268
23. 31. 52·11	92. 31. 11·51	+ 1·468	+ 1·920	+ 1·489	+ 1·235	− 0·236
23. 32. 23·03	92. 23. 33·77	− 1·395	− 1·416	− 1·864	− 0·235	+ 1·236
23. 32. 59·92	92. 31. 35·38	+ 1·346	+ 1·818	+ 1·363	+ 1·206	− 0·206
23. 33. 32·83	92. 23. 29·58	− 1·277	− 1·295	− 1·759	− 0·208	+ 1·208
23. 34. 4·75	92. 31. 56·64	+ 1·248	+ 1·722	+ 1·263	+ 1·184	− 0·185
23. 34. 36·66	92. 23. 27·14	− 1·188	− 1·204	− 1·681	− 0·189	+ 1·188
23. 35. 6·58	92. 32. 15·73	+ 1·168	+ 1·653	+ 1·181	+ 1·168	− 0·168
23. 35. 45·47	92. 23. 25·87	− 1·106	− 1·121	− 1·614	− 0·173	+ 1·174
23. 36. 22·37	92. 32. 37·65	+ 1·083	+ 1·583	+ 1·095	+ 1·153	− 0·153
23. 36. 56·28	92. 23. 25·87	− 1·032	− 1·045	− 1·554	− 0·160	+ 1·161
23. 37. 32·18	92. 32. 56·57	+ 1·016	+ 1·530	+ 1·027	+ 1·143	− 0·142
23. 38. 7·09	92. 23. 27·01	− 0·966	− 0·979	− 1·503	− 0·150	+ 1·150
23. 38. 40·00	92. 33. 13·95	+ 0·957	+ 1·484	+ 0·967	+ 1·134	− 0·134
23. 39. 23·88	92. 23. 29·40	− 0·903	− 0·915	− 1·457	− 0·141	+ 1·142
23. 40. 1·77	92. 33. 33·71	+ 0·894	+ 1·438	+ 0·903	+ 1·126	− 0·126
23. 40. 36·68	92. 23. 32·78	− 0·849	− 0·860	− 1·418	− 0·135	+ 1·135
23. 41. 12·57	92. 33. 49·76	+ 0·844	+ 1·403	+ 0·853	+ 1·120	− 0·121
23. 42. 1·44	92. 23. 37·85	− 0·792	− 0·803	− 1·380	− 0·129	+ 1·129
23. 42. 38·34	92. 34. 8·13	+ 0·789	+ 1·367	+ 0·799	+ 1·116	− 0·116
23. 43. 10·26	92. 23. 42·78	− 0·749	− 0·760	− 1·352	− 0·125	+ 1·125
23. 43. 45·16	92. 34. 21·61	+ 0·750	+ 1·343	+ 0·759	+ 1·113	− 0·114
23. 44. 24·05	92. 23. 48·92	− 0·707	− 0·718	− 1·327	− 0·122	+ 1·122

OBSERVATIONS of DIFFERENCE of N.P.D. of UPPER and LOWER CUSPS—*concluded.*

No. of Series.	Clock Time of Observation.	Object.	Approx. N.P.D.	Approx. Hour Angle.	Readings of Microscopes. M.	Readings of Microscopes. N.	Reading of Declination Micrometer.	Concluded Circle Reading.	Correction for Refraction in N.P.D.	Concluded Circle Reading corrected for Refraction.
	h m s		° ′	h m s	° ′ ″	′ ″	rev.	° ′ ″	′ ″	° ′ ″
30	12. 16. 1	L. Cusp	92. 35	0. 4. 49	92. 41. 31·2	41. 45·3	1·520	92. 42. 7·49	1. 19·20	92. 43. 26·69
31	12. 16. 37	U. Cusp	92. 24	0. 3. 45	92. 30. 52·7	31. 7·6	2·088	92. 31. 40·48	1. 18·67	92. 32. 59·15
32	12. 20. 21	L. Cusp	92. 35	0. 0. 54	92. 42. 0·5	42. 13·4	2·472	92. 42. 54·57	1. 19·21	92. 44. 13·78
33	12. 21. 1	U. Cusp	92. 24	0. 0. 39	92. 31. 21·9	31. 34·4	2·209	92. 32. 10·76	1. 18·69	92. 33. 29·45
34	12. 23. 21	L. Cusp	92. 36	0. 2. 24	92. 42. 19·4	42. 33·8	2·323	92. 43. 11·29	1. 19·23	92. 44. 30·52
35	12. 24. 1	U. Cusp	92. 25	0. 3. 38	92. 31. 18·3	31. 31·6	3·601	92. 32. 34·55	1. 18·72	92. 33. 53·27
36	12. 24. 50	L. Cusp	92. 36	0. 3. 50	92. 42. 13·0	42. 28·0	3·663	92. 43. 31·17	1. 19·25	92. 44. 50·42
37	12. 25. 31	U. Cusp	92. 25	0. 5. 7	92. 31. 30·9	31. 44·0	3·733	92. 32. 49·58	1. 18·74	92. 34. 8·32
38	12. 26. 12	L. Cusp	92. 36	0. 5. 10	92. 42. 12·5	42. 29·2	4·051	92. 43. 39·04	1. 19·27	92. 44. 58·31

The adopted value of one revolution of the Declination Micrometer is 19″·379.
The correction for Runs of Microscopes for 5′ is −0″·68.
The error of the Sidereal Standard from series 5 to 38 was 18ˢ·26 slow.

TABULAR N.P.D. of each CUSP, with EFFECT of ERRORS of ELEMENTS—*concluded.*

Mean Solar Time.	Tabular N.P.D. of Cusp.	Coefficients of Small Errors of Elements.				
h m s	° ′ ″					
23. 44. 59·96	92. 34. 35·93	+ 0·709 da	+ 1·319 dS	+ 0·719 ds	+ 1·111 $d\Delta$	− 0·111 $d\delta$
23. 45. 35·86	92. 23. 55·63	− 0·668	− 0·680	− 1·304	− 0·119	+ 1·120
23. 49. 19·24	92. 35. 19·73	+ 0·585	+ 1·252	+ 0·595	+ 1·106	− 0·106
23. 49. 59·14	92. 24. 25·98	− 0·544	− 0·556	− 1·239	− 0·113	+ 1·113
23. 51. 18·75	92. 35. 37·15	+ 0·535	+ 1·228	+ 0·546	+ 1·106	− 0·105
23. 52. 58·65	92. 24. 51·29	− 0·471	− 0·484	− 1·205	− 0·109	+ 1·109
23. 53. 47·51	92. 35. 56·67	+ 0·477	+ 1·203	+ 0·489	+ 1·104	− 0·104
23. 54. 28·40	92. 25. 5·21	− 0·437	− 0·450	− 1·191	− 0·108	+ 1·108
23. 55. 9·29	92. 36. 6·45	+ 0·447	+ 1·191	+ 0·459	+ 1·103	− 0·103

OBSERVATIONS of DIFFERENCE of R.A. of CUSPS.

No. of Series.	Object.	Approx. N.P.D.	Approx. Hour Angle.	Seconds of Transit over the Wires.									Concluded Transit over Mean of Wires.	Clock Slow.	Sidereal Time.	Correction for Refraction.	Sidereal Time corrected for Refraction.
				I.	II.	III.	IV.	V.	VI.	VII.	VIII.	IX.					
		° ′	h m s	s	s	s	s	s	s	s	s	s	h m s	s	h m s	s	h m s
39	R. Cusp	92. 26	0. 8. 33	45·1	47·3	49·6	52·0	56·5	1·3	3·8	6·0	8·3	12. 28. 56·65	18·25	12. 29. 14·90	−0·15	12. 29. 14·75
	L. Cusp	92. 36	0. 8. 32	24·6	27·2	29·8	31·9	36·8	41·5	43·9	46·2	48·6	12. 29. 36·72	18·25	12. 29. 54·97	−0·15	12. 29. 54·82
40	R. Cusp	92. 26	0. 10. 41	54·0	56·3	58·5	0·8	5·7	10·2	12·8	15·0	17·3	12. 31. 5·62	18·25	12. 31. 23·87	−0·19	12. 31. 23·68
	L. Cusp	92. 37	0. 10. 39	35·3	37·8	40·0	42·4	47·2	51·9	54·3	56·8	59·1	12. 31. 47·20	18·25	12. 32. 5·45	−0·19	12. 32. 5·26
41	R. Cusp	92. 26	0. 12. 12	26·1	28·3	30·6	33·1	37·8	42·3	44·9	47·2	49·3	12. 32. 37·73	18·25	12. 32. 55·98	−0·22	12. 32. 55·76
	L. Cusp	92. 37	0. 12. 12	8·4	11·0	13·2	15·7	20·2	25·0	27·3	29·8	32·1	12. 33. 20·30	18·25	12. 33. 38·55	−0·22	12. 33. 38·33
42	R. Cusp	92. 27	0. 14. 3	17·5	19·9	22·3	24·8	29·3	34·0	36·3	38·6	40·9	12. 34. 29·29	18·25	12. 34. 47·54	−0·25	12. 34. 47·29
	L. Cusp	92. 37	0. 14. 2	1·2	3·6	6·0	8·2	13·0	18·0	20·2	22·8	25·0	12. 35. 13·11	18·25	12. 35. 31·36	−0·25	12. 35. 31·11
43	R. Cusp	92. 27	0. 15. 35	49·7	52·0	54·3	56·7	1·3	6·1	8·3	10·8	13·1	12. 36. 1·37	18·25	12. 36. 19·62	−0·28	12. 36. 19·34
	L. Cusp	92. 37	0. 15. 33	34·3	36·5	39·0	41·4	45·9	50·8	53·2	55·7	58·0	12. 36. 46·09	18·25	12. 37. 4·34	−0·28	12. 37. 4·06
44	R. Cusp	92. 27	0. 17. 1	17·2	19·7	21·9	24·1	29·0	33·6	35·9	38·5	40·8	12. 37. 28·96	18·25	12. 37. 47·21	−0·30	12. 37. 46·91
	L. Cusp	92. 37	0. 17. 1	2·8	5·0	7·3	9·8	14·3	19·1	21·7	24·0	26·3	12. 38. 14·48	18·25	12. 38. 32·73	−0·30	12. 38. 32·43
45	R. Cusp	92. 28	0. 18. 33	49·8	52·2	54·4	56·9	1·3	6·0	8·4	11·0	13·2	12. 39. 1·47	18·25	12. 39. 19·72	−0·33	12. 39. 19·39
	L. Cusp	92. 37	0. 18. 33	36·1	38·2	40·9	43·2	47·8	52·5	54·9	57·3	59·6	12. 39. 47·83	18·25	12. 40. 6·08	−0·33	12. 40. 5·75
46	R. Cusp	92. 28	0. 20. 17	34·2	36·8	39·0	41·3	46·1	50·9	53·1	55·3	57·8	12. 40. 46·05	18·25	12. 41. 4·30	−0·36	12. 41. 3·94
	L. Cusp	92. 37	0. 20. 17	21·3	23·6	26·0	28·2	33·0	37·8	40·1	42·8	45·0	12. 41. 33·09	18·25	12. 41. 51·34	−0·36	12. 41. 50·98
47	R. Cusp	92. 29	0. 22. 20	39·2	41·4	43·8	46·0	50·9	55·7	58·0	0·1	2·6	12. 42. 50·86	18·25	12. 43. 9·11	−0·40	12. 43. 8·71
	L. Cusp	92. 37	0. 22. 20	26·8	29·2	31·2	33·5	38·9	43·4	45·9	48·2	50·6	12. 43. 38·63	18·25	12. 43. 56·88	−0·40	12. 43. 56·48
48	R. Cusp	92. 29	0. 24. 4	24·3	26·6	29·0	31·4	36·0	40·8	43·0	45·3	47·8	12. 44. 36·02	18·25	12. 44. 54·27	−0·43	12. 44. 53·84
	L. Cusp	92. 37	0. 24. 4	12·3	14·8	17·1	19·4	24·0	29·0	31·3	33·6	36·1	12. 45. 24·18	18·25	12. 45. 42·43	−0·43	12. 45. 42·00
49	R. Cusp	92. 29	0. 25. 38	58·5	0·8	3·2	5·5	10·2	15·0	17·3	19·8	21·9	12. 46. 10·25	18·25	12. 46. 28·50	−0·46	12. 46. 28·04
	L. Cusp	92. 38	0. 25. 38	47·1	49·3	51·8	54·0	58·7	3·5	5·8	8·2	10·8	12. 46. 58·80	18·25	12. 47. 17·05	−0·46	12. 47. 16·59
50	R. Cusp	92. 30	0. 27. 17	39·3	41·5	44·0	46·3	51·0	55·8	58·0	0·6	2·8	12. 47. 51·04	18·25	12. 48. 9·29	−0·49	12. 48. 8·80
	L. Cusp	92. 38	0. 27. 17	28·0	30·3	32·8	35·1	39·8	44·3	46·9	49·3	51·7	12. 48. 39·80	18·25	12. 48. 58·05	−0·49	12. 48. 57·56
51	R. Cusp	92. 30	0. 28. 56	19·0	21·6	23·8	26·2	31·0	35·8	38·0	40·3	42·8	12. 49. 30·95	18·25	12. 49. 49·20	−0·51	12. 49. 48·69
	L. Cusp	92. 38	0. 28. 56	8·0	10·2	12·8	15·1	19·8	24·3	26·9	29·1	31·4	12. 50. 19·73	18·25	12. 50. 37·98	−0·51	12. 50. 37·47
52	R. Cusp	92. 31	0. 30. 37	0·6	2·8	5·1	7·6	12·3	17·0	19·4	21·5	24·0	12. 51. 12·26	18·24	12. 51. 30·50	−0·54	12. 51. 29·96
	L. Cusp	92. 38	0. 30. 36	49·4	51·3	53·9	56·2	0·9	5·7	7·9	10·3	12·8	12. 52. 0·94	18·24	12. 52. 19·18	−0·54	12. 52. 18·64
53	R. Cusp	92. 31	0. 32. 9	33·9	35·9	38·5	41·0	45·8	50·3	52·8	55·1	57·4	12. 52. 45·63	18·24	12. 53. 3·87	−0·57	12. 53. 3·30
	L. Cusp	92. 38	0. 32. 7	22·3	24·9	27·0	29·4	34·1	39·0	41·3	43·5	45·7	12. 53. 34·13	18·24	12. 53. 52·37	−0·57	12. 53. 51·80

TABULAR R.A. of each CUSP with EFFECT of ERRORS of ELEMENTS.

Mean Solar Time.	Tabular R.A. of Cusp in Arc.	Coefficients of Small Errors of Elements.				
h m s	° ′ ″					
23. 57. 53·48	185. 10. 37·04	+ 1·104 dA	− 0·103 $d\alpha$	− 1·148 dS	− 0·328 ds	+ 0·312 $(d\delta - d\Delta)$
23. 58. 33·44	185. 20. 51·31	− 0·101	+ 1·101	+ 0·311	+ 1·140	− 0·294
0. 0. 2·09	185. 10. 48·17	+ 1·100	− 0·100	− 1·152	− 0·353	+ 0·339
0. 0. 43·56	185. 21. 26·22	− 0·099	+ 1·099	+ 0·337	+ 1·146	− 0·321
0. 1. 33·96	185. 10. 56·72	+ 1·097	− 0·097	− 1·155	− 0·372	+ 0·359
0. 2. 16·40	185. 21. 50·55	− 0·097	+ 1·097	+ 0·356	+ 1·150	− 0·343
0. 3. 25·21	185. 11. 7·77	+ 1·093	− 0·093	− 1·160	− 0·396	+ 0·385
0. 4. 8·91	185. 22. 19·30	− 0·094	+ 1·094	+ 0·382	+ 1·156	− 0·370
0. 4. 57·03	185. 11. 17·43	+ 1·089	− 0·090	− 1·164	− 0·417	+ 0·408
0. 5. 41·64	185. 22. 42·38	− 0·091	+ 1·091	+ 0·404	+ 1·161	− 0·393
0. 6. 24·39	185. 11. 27·37	+ 1·086	− 0·086	− 1·169	− 0·439	+ 0·430
0. 7. 9·78	185. 23. 3·78	− 0·088	+ 1·088	+ 0·426	+ 1·166	− 0·416
0. 7. 56·64	185. 11. 38·38	+ 1·081	− 0·081	− 1·174	− 0·462	+ 0·455
0. 8. 42·88	185. 23. 25·76	− 0·085	+ 1·085	+ 0·450	+ 1·172	− 0·442
0. 9. 40·94	185. 11. 51·65	+ 1·076	− 0·076	− 1·181	− 0·490	+ 0·484
0. 10. 27·85	185. 23. 49·73	− 0·080	+ 1·080	+ 0·479	+ 1·180	− 0·472
0. 11. 45·41	185. 12. 8·63	+ 1·069	− 0·069	− 1·190	− 0·525	+ 0·520
0. 12. 33·05	185. 24. 17·13	− 0·074	+ 1·074	+ 0·515	+ 1·190	− 0·510
0. 13. 30·28	185. 12. 24·02	+ 1·062	− 0·062	− 1·198	− 0·556	+ 0·552
0. 14. 18·32	185. 24. 39·11	− 0·068	+ 1·068	+ 0·548	+ 1·200	− 0·544
0. 15. 4·25	185. 12. 38·67	+ 1·056	− 0·056	− 1·207	− 0·585	+ 0·583
0. 15. 52·67	185. 24. 57·96	− 0·063	+ 1·063	+ 0·578	+ 1·209	− 0·575
0. 16. 44·77	185. 12. 55·26	+ 1·049	− 0·049	− 1·218	− 0·618	+ 0·616
0. 17. 33·40	185. 25. 16·02	− 0·057	+ 1·057	+ 0·613	+ 1·221	− 0·610
0. 18. 24·41	185. 13. 12·72	+ 1·042	− 0·042	− 1·230	− 0·653	+ 0·652
0. 19. 13·06	185. 25. 35·12	− 0·051	+ 1·050	+ 0·649	+ 1·235	− 0·647
0. 20. 5·42	185. 13. 31·53	+ 1·035	− 0·034	− 1·244	− 0·690	+ 0·689
0. 20. 53·98	185. 25. 52·19	− 0·044	+ 1·044	+ 0·688	+ 1·250	− 0·686
0. 21. 38·55	185. 13. 49·85	+ 1·028	− 0·028	− 1·259	− 0·727	+ 0·726
0. 22. 26·92	185. 26. 7·68	− 0·038	+ 1·038	+ 0·726	+ 1·267	− 0·725

OBSERVATIONS of DIFFERENCE of R.A. of CUSPS—*concluded.*

No. of Series.	Object.	Approx. N.P.D.	Approx. Hour Angle.	Seconds of Transit over the Wires.									Concluded Transit over Mean of Wires.	Clock Slow.	Sidereal Time.	Correction for Refraction.	Sidereal Time corrected for Refraction.
				I.	II.	III.	IV.	V.	VI.	VII.	VIII.	IX.					
		° ′	h m s	s	s	s	s	s	s	s	s	s	h m s	s	h m s	s	h m s
54	R. Cusp	92. 31	0. 33. 48	14·9	17·3	19·7	21·9	26·6	31·3	33·8	36·1	38·6	12. 54. 26·69	18·24	12. 54. 44·93	−0·59	12. 54. 44·34
	L. Cusp	92. 38	0. 33. 48	3·2	5·3	7·8	10·0	14·9	19·4	21·8	24·2	26·6	12. 55. 14·80	18·24	12. 55. 33·04	−0·59	12. 55. 32·45
55	R. Cusp	92. 32	0. 35. 22	50·2	52·8	55·0	57·3	2·0	6·7	9·2	11·5	13·9	12. 56. 2·07	18·24	12. 56. 20·31	−0·63	12. 56. 19·68
	L. Cusp	92. 38	0. 35. 22	37·9	40·2	42·7	45·1	49·4	54·0	56·6	59·0	1·3	12. 56. 49·57	18·24	12. 57. 7·81	−0·63	12. 57. 7·18
56	R. Cusp	92. 32	0. 36. 51	20·0	22·3	24·8	27·2	31·9	36·8	39·1	41·3	43·9	12. 57. 31·92	18·24	12. 57. 50·16	−0·66	12. 57. 49·50
	L. Cusp	92. 38	0. 36. 51	7·1	9·5	11·9	14·0	19·0	23·5	26·0	28·2	30·5	12. 58. 18·85	18·24	12. 58. 37·09	−0·66	12. 58. 36·43
57	R. Cusp	92. 33	0. 38. 25	56·0	58·4	0·8	3·3	7·8	12·5	15·0	17·2	19·8	12. 59. 7·86	18·24	12. 59. 26·10	−0·69	12. 59. 25·41
	L. Cusp	92. 38	0. 38. 25	42·4	44·6	47·0	49·2	53·8	58·9	1·1	3·5	5·9	12. 59. 54·05	18·24	13. 0. 12·29	−0·69	13. 0. 11·60
58	R. Cusp	92. 33	0. 39. 59	31·9	34·2	36·7	39·0	43·7	48·3	50·9	53·1	55·4	13. 0. 43·69	18·24	13. 1. 1·93	−0·72	13. 1. 1·21
	L. Cusp	92. 38	0. 39. 59	17·3	19·6	21·9	24·2	29·0	33·5	35·9	38·1	40·7	13. 1. 28·91	18·24	13. 1. 47·15	−0·72	13. 1. 46·43
59	R. Cusp	92. 34	0. 43. 31	7·3	9·8	12·1	14·7	19·4	24·0	26·8	28·9	31·2	13. 4. 19·35	18·24	13. 4. 37·59	−0·78	13. 4. 36·81
	L. Cusp	92. 38	0. 43. 31	49·8	52·1	54·3	56·8	1·2	5·9	8·3	11·0	13·2	13. 5. 1·40	18·24	13. 5. 19·64	−0·78	13. 5. 18·86
60	R. Cusp	92. 35	0. 44. 57	35·9	38·2	40·9	43·3	47·9	52·7	55·0	57·3	59·9	13. 5. 47·90	18·24	13. 6. 6·14	−0·81	13. 6. 5·33
	L. Cusp	92. 38	0. 44. 57	16·8	19·1	21·3	23·7	28·4	33·1	35·5	37·8	40·0	13. 6. 28·41	18·24	13. 6. 46·65	−0·81	13. 6. 45·84

TABULAR R.A. of each CUSP with EFFECT of ERRORS of ELEMENTS—*concluded.*

Mean Solar Time.	Tabular R.A. of Cusp in Arc.	Coefficients of Small Errors of Elements.				
h m s	° ′ ″					
0. 23. 19·33	185. 14. 10·75	+ 1·020 dA	− 0·020 $d\alpha$	− 1·277 dS	− 0·768 ds	+ 0·767 ($d\delta$ − $d\Delta$)
0. 24. 7·31	185. 26. 21·85	− 0·031	+ 1·031	+ 0·770	+ 1·288	− 0·769
0. 24. 54·45	185. 14. 31·69	+ 1·014	− 0·014	− 1·299	− 0·811	+ 0·811
0. 25. 41·82	185. 26. 34·67	− 0·025	+ 1·026	+ 0·815	+ 1·310	− 0·814
0. 26. 24·05	185. 14. 52·48	+ 1·007	− 0·007	− 1·321	− 0·854	+ 0·854
0. 27. 10·86	185. 26. 45·67	− 0·020	+ 1·022	+ 0·860	+ 1·335	− 0·860
0. 27. 59·73	185. 15. 15·89	+ 1·001	− 0·001	− 1·350	− 0·905	+ 0·904
0. 28. 45·79	185. 26. 56·09	− 0·014	+ 1·014	+ 0·912	+ 1·365	− 0·912
0. 29. 35·30	185. 15. 40·61	+ 1·005	− 0·005	− 1·396	− 0·968	+ 0·968
0. 30. 20·40	185. 27. 5·19	− 0·010	+ 1·010	+ 0·971	+ 1·402	− 0·971
0. 33. 10·37	185. 16. 41·65	+ 1·014	− 0·014	− 1·526	− 1·139	+ 1·139
0. 33. 52·30	185. 27. 20·04	− 0·003	+ 1·003	+ 1·129	+ 1·511	− 1·129
0. 34. 38·68	185. 17. 9·30	+ 1·015	− 0·015	− 1·588	− 1·220	+ 1·220
0. 35. 19·08	185. 27. 23·04	− 0·004	+ 1·004	+ 1·212	+ 1·575	− 1·212

EQUATIONS given by the MEASURES of DIFFERENCES of N.P.D. of UPPER and LOWER CUSPS.

Number of Series.	Measured Quantity.		Tabular Quantity.								
	′ ″		′ ″								
1 and 2	4.16·76	=	5.12·60	+	4·775 $d\,a$	+	5·279 $d\,S$	+	5·277 $d\,s$	−	2·039 $(d\,\delta - d\,\Delta)$
3 and 4	5.42·62	=	6.27·43	+	3·686	+	4·162	+	4·162	−	1·696
5 and 6	6.23·37	=	7. 2·94	+	3·264	+	3·736	+	3·740	−	1·575
7 and 8	6.59·30	=	7.32·35	+	2·990	+	3·467	+	3·471	−	1·504
9 and 10	7.27·14	=	8. 1·61	+	2·741	+	3·234	+	3·227	−	1·442
11 and 12	8. 0·91	=	8.27·06	+	2·525	+	3·017	+	3·022	−	1·393
13 and 14	8.24·08	=	8.48·59	+	2·356	+	2·857	+	2·862	−	1·356
15 and 16	8.48·15	=	9.11·78	+	2·189	+	2·704	+	2·709	−	1·327
17 and 18	9. 7·21	=	9.30·70	+	2·048	+	2·575	+	2·581	−	1·303
19 and 20	9.26·55	=	9.46·94	+	1·923	+	2·463	+	2·470	−	1·284
21 and 22	9.45·31	=	10. 4·31	+	1·797	+	2·353	+	2·360	−	1·268
23 and 24	9.59·46	=	10.16·98	+	1·693	+	2·263	+	2·271	−	1·256
25 and 26	10.15·69	=	10.30·28	+	1·581	+	2·170	+	2·179	−	1·245
27 and 28	10.23·19	=	10.38·83	+	1·499	+	2·103	+	2·111	−	1·239
29 and 30	10.30·32	=	10.47·01	+	1·416	+	2·037	+	2·046	−	1·233
31 and 32	11.14·63	=	11.24·10	+	1·253	+	1·932	+	1·899	−	1·226
33 and 34	11. 1·07	=	11.11·17	+	1·079	+	1·784	+	1·785	−	1·218
35 and 36	10.57·15	=	11. 5·38	+	0·948	+	1·687	+	1·694	−	1·213
37 and 38	10.49·99	=	11. 1·24	+	0·884	+	1·641	+	1·650	−	1·211

EQUATIONS given by the TRANSITS of RIGHT and LEFT CUSPS.

Series.	Measured Quantity, converted into Arc.		Tabular Quantity.								
	′ ″		′ ″								
39	10. 1·05	=	10.14·27	+	1·204 $d\,a$	+	1·459 $d\,S$	+	1·468 $d\,s$	−	0·606 $(d\,\delta - d\,\Delta)$
40	10.23·70	=	10.38·05	+	1·199	+	1·489	+	1·499	−	0·660
41	10.38·55	=	10.53·83	+	1·194	+	1·511	+	1·522	−	0·702
42	10.57·30	=	11.11·53	+	1·187	+	1·542	+	1·552	−	0·755
43	11.10·80	=	11.24·95	+	1·181	+	1·568	+	1·578	−	0·801
44	11.22·80	=	11.36·41	+	1·174	+	1·595	+	1·605	−	0·846
45	11.35·40	=	11.47·38	+	1·166	+	1·624	+	1·634	−	0·897
46	11.45·60	=	11.58·08	+	1·156	+	1·660	+	1·670	−	0·956
47	11.56·55	=	12. 8·50	+	1·143	+	1·705	+	1·715	−	1·030
48	12. 2·40	=	12.15·09	+	1·130	+	1·746	+	1·756	−	1·096
49	12. 8·25	=	12.19·29	+	1·119	+	1·785	+	1·794	−	1·158
50	12.11·40	=	12.20·76	+	1·106	+	1·831	+	1·839	−	1·226
51	12.11·70	=	12.22·40	+	1·092	+	1·879	+	1·888	−	1·299
52	12.10·20	=	12.20·66	+	1·078	+	1·932	+	1·940	−	1·375
53	12. 7·50	=	12.17·83	+	1·056	+	1·985	+	1·994	−	1·451
54	12. 1·65	=	12.11·10	+	1·051	+	2·047	+	2·056	−	1·536
55	11.52·50	=	12. 2·98	+	1·040	+	2·114	+	2·121	−	1·625
56	11.43·95	=	11.53·19	+	1·029	+	2·181	+	2·189	−	1·714
57	11.32·85	=	11.40·20	+	1·015	+	2·262	+	2·270	−	1·816
58	11.18·30	=	11.24·58	+	1·015	+	2·367	+	2·370	−	1·939
59	10.30·75	=	10.38·39	+	1·017	+	2·655	+	2·650	−	2·268
60	10. 7·65	=	10.13·74	+	1·019	+	2·800	+	2·795	−	2·432

The resulting equations for the Equatoreal observations, formed by taking the sums of the constituent equations of each group, are—

$$169'.32''.90 = 177'.1''.30 + 40.647\,da + 51.464\,dS + 51.516\,ds - 26.028\,(d\delta - d\Delta)$$
$$251.50.85 = 255.53.21 + 24.371\,da + 41.737\,dS + 41.905\,ds - 28.188\,(d\delta - d\Delta).$$

Substituting in the above equations the values of dS ($-1''.679$) and ds ($-0''.492$) determined from the observations of the Solar Eclipse of 1870, December 21–22, the following equations are formed :—

$$-336''.64 = +40.647\,da - 26.028\,(d\delta - d\Delta)$$
$$-151''.66 = +24.371\,da - 28.188\,(d\delta - d\Delta)$$

from which we deduce

$$da = -10''.83 = -0^s.722$$
$$(d\delta - d\Delta) = -3''.98.$$

It will be perceived that the equations are not favourable for the accurate determination of these elements. This arises from the partial character of the eclipse.

Observations of the R.A. and N.P.D. of the Cusps were also made with the Transit-Circle on the Meridian, from which the following equations have been formed :—

N. Cusp. $92^\circ.24'.22''.69 = 92^\circ.24'.20''.96 - 0.561\,da - 0.573\,dS - 1.247\,ds - 0.113\,d\Delta + 1.113\,d\delta$ (1)
S. Cusp. $92.35.16.47 = 92.35.24.74 + 0.570\,da + 1.245\,dS + 0.581\,ds + 1.106\,d\Delta - 0.106\,d\delta$ (2)

R. Cusp. $185^\circ.10'.2''.85 = 185^\circ.10'.0''.87 + 1.113\,dA - 0.113\,d\alpha - 1.137\,dS - 0.252\,ds + 0.225\,(d\delta - d\Delta)$ (3)
L. Cusp. $185.18.10.05 = 185.18.23.43 - 0.106\,dA + 1.106\,d\alpha + 0.231\,dS + 1.126\,ds - 0.206\,(d\delta - d\Delta)$ (4)

or

$$10'.53''.78 = 11'.3''.78 + 1.131\,da + 1.818\,dS + 1.828\,ds - 1.219\,(d\delta - d\Delta)$$
$$8.7.20 = 8.22.56 + 1.219\,da + 1.368\,dS + 1.378\,ds - 0.431\,(d\delta - d\Delta).$$

Substituting in these equations the value of dS ($-0''.53$) determined from observations of the Sun made with the Transit-Circle, and the value of ds ($-0''.492$) from the observations of the Solar Eclipse of 1870, December 21–22, with the Great Equatoreal, the following are the resulting equations :—

$$-8''.14 = +1.131\,da - 1.219\,(d\delta - d\Delta)$$
$$-13''.96 = +1.219\,da - 0.431\,(d\delta - d\Delta)$$

from which we deduce

$$da = -13''.53 = -0^s.902$$
$$(d\delta - d\Delta) = -5''.88.$$

By substituting these values for da and $(d\delta - d\Delta)$, as well as those for dS and ds, in the original equations (1), (2), (3), and (4), formed from the meridional observations, the following new equations are formed :—

$$+2''.575 = +1.113\,dA - 0.113\,d\alpha$$
$$-13''.915 = -0.106\,dA + 1.106\,d\alpha$$

and

$$-6''.778 = -0.113\,d\Delta + 1.113\,d\delta$$
$$+0''.389 = +1.106\,d\Delta - 0.106\,d$$

from which the following values are deduced :—

$$dA = +1''.04 = +0^s.069$$
$$d\alpha = -12''.48 = -0^s.832$$
$$d\Delta = -0''.23$$
$$d\delta = -6''.11.$$

ROYAL OBSERVATORY, GREENWICH.

MICROMETER-MEASURES

OF

THE POSITIONS OF

SATURN'S SATELLITES,

MADE WITH

THE GREAT EQUATOREAL.

1875.

IAPETUS.

Day, 1875.	Observer.	Object.	Time by Sidereal Standard at observation of Distance.	Greenwich Sidereal Time at observation of Distance.	Micrometer.	Reading of Micrometer.	Instrumental Constant.	Concluded Distance in Arc.	Concluded Distance from Center of Saturn.	Limb or Center of Saturn.	Time by Sidereal Standard at observation of Position-angle.	Greenwich Sidereal Time at observation of Position-angle.	Reading of Position-circle.	Instrumental Constant.	Concluded Position-angle from Center of Saturn.
			h m s	h m s		rev.	rev.	′ ″	′ ″		h m s	h m s	° ′	° ′	° ′
Sept. 14	WC	Saturn A.	20. 42. 0	20. 42. 28	O	23·202	40·044	3. 1·16	3. 11·50	U	20. 52. 0	20. 52. 28	7. 41	90. 18	94. 49
		Iapetus...			P	26·204				L	20. 56. 0	20. 56. 28	1. 20		
		Saturn B.	20. 48. 30	20. 48. 58	O	24·273		3. 21·84							
		Iapetus...			P	26·202									
Sept. 17	J	Saturn A.	20. 35. 50	20. 36. 16	P	21·398	40·053	0. 58·71	1. 8·19	U	20. 44. 8	20. 44. 34	204. 5	90. 11	106. 42
		Iapetus...			O	21·686				L	20. 54. 34	20. 55. 0	188. 57		
		Saturn B.	20. 38. 40	20. 39. 6	P	22·173		1. 17·67							
		Iapetus...			O	21·894									
		Saturn A.	22. 29. 30	22. 29. 56	O	20·306		0. 54·71	1. 4·18	U	22. 35. 55	22. 36. 21	25. 49		109. 13
		Iapetus...			P	22·574				L	22. 38. 4	22. 38. 30	12. 15		
		Saturn B.	22. 32. 59	22. 33. 25	O	21·195		1. 13·65							
		Iapetus...			P	22·664									
Sept. 20	WC	Saturn A.	20. 16. 0	20. 16. 25	P	21·577	40·059	0. 55·77	1. 5·25	U	20. 23. 30	20. 23. 55	333. 59	90. 26	252. 41
		Iapetus...			O	21·364				L	20. 25. 15	20. 25. 40	350. 31		
		Saturn B.	20. 17. 30	20. 17. 55	P	22·557		1. 14·73							
		Iapetus...			O	21·364									
Sept. 29	M	Saturn A.	20. 56. 40	20. 56. 58	P	19·727	40·028	6. 21·88	6. 31·98	C	21. 1. 30	21. 1. 48	177. 40	90. 24	268. 7
		Iapetus...			O	0·566				C	21. 4. 30	21. 4. 48	357. 45		
		Saturn B.	20. 58. 50	20. 59. 8	P	18·683		6. 42·07							
		Iapetus...			O	0·559									
		Saturn A.	21. 11. 0	21. 11. 18	P	20·350		6. 25·77	6. 34·70						
		Iapetus...			O	39·614									
		Saturn B.	21. 20. 15	21. 20. 33	P	21·273		6. 43·62							
		Iapetus...			O	39·614									
Oct. 2	J	Saturn A.	21. 59. 20	21. 59. 37	P	12·224	40·041	7. 42·14	7. 51·73	C	20. 52. 30	20. 52. 47	358. 40	90. 30	269. 22
		Iapetus...			O	3·934				C	22. 7. 30	22. 7. 47	179. 4		
		Saturn B.	22. 2. 30	22. 2. 47	P	11·232		8. 1·31							
		Iapetus...			O	3·935									
Oct. 5	J	Saturn A.	21. 50. 30	21. 50. 45	P	34·524	40·053	8. 26·11	8. 36·44	C	21. 55. 50	21. 56. 5	359. 9	90. 29	269. 41
		Iapetus...			O	31·684				C	22. 44. 55	22. 45. 10	179. 15		
		Saturn B.	21. 53. 30	21. 53. 45	P	35·270		8. 46·77							
		Iapetus...			O	32·006									
		Saturn A.	22. 40. 10	22. 40. 25	P	7·019		8. 27·96	8. 37·34						
		Iapetus...			O	6·783									
		Saturn B.	22. 42. 50	22. 43. 5	P	5·928		8. 46·71							
		Iapetus...			O	6·905									
Oct. 6	J	Saturn A.	20. 20. 50	20. 21. 4	P	33·388	40·061	8. 35·99	8. 45·43	C	21. 20. 0	21. 20. 14	179. 50	90. 30	270. 20
		Iapetus...			O	33·339									
		Saturn B.	20. 24. 0	20. 24. 14	P	34·349		8. 54·87							
		Iapetus...			O	33·354									
		Saturn A.	21. 13. 10	21. 13. 24	P	6·936		8. 38·68	8. 46·94						
		Iapetus...			O	6·320									
		Saturn B.	21. 15. 0	21. 15. 14	P	6·008		8. 55·19							
		Iapetus...			O	6·395									
Oct. 11	M	Saturn A.	21. 40. 50	21. 41. 2	P	33·819	40·053	8. 46·85	8. 55·14	C	21. 39. 50	21. 40. 2	0. 31	90. 21	270. 50
		Iapetus...			O	33·461				C	21. 56. 15	21. 56. 27	180. 26		
		Saturn B.	21. 44. 15	21. 44. 27	P	34·815		9. 3·43							
		Iapetus...			O	33·322									
		Saturn A.	21. 59. 15	21. 59. 27	P	5·513		8. 41·84	8. 50·14						
		Iapetus...			O	7·572									
		Saturn B.	22. 1. 15	22. 1. 27	P	4·544		8. 58·44							
		Iapetus...			O	7·683									

IAPETUS—*concluded.*

Day, 1875.	Observer.	Object.	Time by Sidereal Standard at observation of Distance.	Greenwich Sidereal Time at observation of Distance.	Micrometer.	Reading of Micrometer.	Instrumental Constant.	Concluded Distance in Arc.	Concluded Distance from Center of Saturn.	Limb or Center of Saturn.	Time by Sidereal Standard at observation of Position-angle.	Greenwich Sidereal Time at observation of Position-angle.	Reading of Position-circle.	Instrumental Constant.	Concluded Position-angle from Center of Saturn.
			h m s	h m s		rev.	rev.	′ ″	′ ″		h m s	h m s	° ′	° ′	° ′
Oct. 12	WC	Saturn A.	21. 48. 20	21. 48. 31	O	33·680	40·047	8. 31·07		C	21. 43. 0	21. 43. 11	180. 29	90. 12	
		Iapetus...			P	32·779			8. 39·13	C	21. 56. 30	21. 56. 41	0. 28		270. 41
		Saturn B.	21. 50. 0	21. 50. 11	O	34·513		8. 47·19							
		Iapetus...			P	32·779									
		Saturn A.	22. 0. 0	22. 0. 11	O	6·299		8. 31·42							
		Iapetus...			P	7·318			8. 40·41						
		Saturn B.	22. 1. 30	22. 1. 41	O	5·370		8. 49·40							
		Iapetus...			P	7·318									
Oct. 16	J	Saturn A.	20. 47. 30	20. 47. 38	P	32·154	40·053	7. 22·63		C	20. 53. 0	20. 53. 8	1. 32	90. 22	
		Iapetus...			O	30·774			7. 32·46	C	21. 3. 30	21. 3. 38	181. 29		271. 53
		Saturn B.	20. 50. 20	20. 50. 28	P	33·170		7. 42·29							
		Iapetus...			O	30·774									
		Saturn A.	20. 57. 0	20. 57. 8	P	7·216		7. 25·50							
		Iapetus...			O	9·814			7. 34·02						
		Saturn B.	21. 0. 10	21. 0. 18	P	6·336		7. 42·53							
		Iapetus...			O	9·814									
Oct. 21	J	Saturn A.	21. 41. 50	21. 41. 55	P	25·521	40·035	4. 57·09		C	21. 44. 30	21. 44. 35	3. 21	90. 24	273. 45
		Iapetus...			O	29·867			5. 6·68						
		Saturn B.	21. 43. 5	21. 43. 10	P	26·512		5. 16·26							
		Iapetus...			O	29·867									
Oct. 25	J	Saturn A.	21. 35. 0	21. 35. 0	P	17·035	40·050	2. 30·49		C	21. 48. 30	21. 48. 30	186. 49	90. 30	
		Iapetus...			O	15·238			2. 38·90	C	22. 1. 10	22. 1. 10	7. 3		277. 26
		Saturn B.	21. 39. 0	21. 39. 0	P	16·166		2. 47·30							
		Iapetus...			O	15·238									
		Saturn A.	21. 52. 50	21. 52. 50	P	24·034		2. 29·72							
		Iapetus...			O	23·753			2. 38·54						
		Saturn B.	21. 54. 30	21. 54. 30	P	24·946		2. 47·35							
		Iapetus...			O	23·753									
Nov. 4	J	Saturn A.	21. 42. 50	21. 43. 44	O	28·084	40·051	3. 51·64		C	21. 53. 30	21. 54. 24	356. 2	90. 18	
		Iapetus...			P	23·938			3. 59·48	C	22. 5. 10	22. 6. 4	176. 8		86. 23
		Saturn B.	21. 49. 45	21. 50. 39	O	28·894		4. 7·32							
		Iapetus...			P	23·938									
		Saturn A.	21. 57. 25	21. 58. 19	O	13·633		3. 53·98							
		Iapetus...			P	14·326			4. 2·85						
		Saturn B.	21. 59. 15	22. 0. 9	O	12·716		4. 11·72							
		Iapetus...			P	14·326									
Nov. 8	J	Saturn A.	22. 17. 10	22. 18. 1	P	28·714	40·075	5. 21·68		C	22. 21. 30	22. 22. 21	175. 13	90. 24	
		Iapetus...			O	27·985			5. 29·83	C	22. 29. 30	22. 30. 21	355. 14		85. 38
		Saturn B.	22. 19. 0	22. 19. 51	P	29·556		5. 37·97							
		Iapetus...			O	27·985									
		Saturn A.	22. 24. 0	22. 24. 51	P	13·106		5. 21·54							
		Iapetus...			O	10·352			5. 30·02						
		Saturn B.	22. 26. 0	22. 26. 51	P	12·230		5. 38·49							
		Iapetus...			O	10·352									

TITAN.

Sept. 14	WC	Saturn A.	19. 38. 0	19. 38. 28	P	24·549	40·044	2. 29·55		U	19. 43. 40	19. 44. 8	198. 56	90. 18	
		Titan			O	23·223			2. 38·88	L	19. 48. 0	19. 48. 28	192. 15		105. 54
		Saturn B.	19. 40. 30	19. 40. 58	P	26·062		2. 48·21							
		Titan			O	22·675									

TITAN—*continued.*

Day, 1875.	Observer.	Object.	Time by Sidereal Standard at observation of Distance.	Greenwich Sidereal Time at observation of Distance.	Micrometer.	Reading of Micrometer.	Instrumental Constant.	Concluded Distance in Arc.	Concluded Distance from Center of Saturn.	Limb or Center of Saturn.	Time by Sidereal Standard at observation of Position-angle.	Greenwich Sidereal Time at observation of Position-angle.	Reading of Position-circle.	Instrumental Constant.	Concluded Position-angle from Center of Saturn.
			h m s	h m s		rev.	rev.	′ ″	′ ″		h m s	h m s	° ′	° ′	° ′
Sept. 14	WC	Saturn A.	19. 51. 0	19. 51. 28	O	16·298	40·044	2. 28·84		U	19. 56. 40	19. 57. 8	18. 49	90. 18	
		Titan			P	16·054			2. 37·21	L	19. 59. 30	19. 59. 58	12. 12		105. 49
		Saturn B.	19. 54. 30	19. 54. 58	O	15·554		2. 45·57							
		Titan			P	15·934									
Sept. 15	J	Saturn A.	21. 30. 8	21. 30. 35	O	21·996	40·055	1. 35·56		U	21. 35. 7	21. 35. 34	33. 43	90. 10	
		Titan			P	22·997			1. 45·41	L	21. 38. 58	21. 39. 25	24. 31		119. 17
		Saturn B.	21. 31. 43	21. 32. 10	O	22·962		1. 55·26							
		Titan			P	23·049									
		Saturn A.	22. 25. 1	22. 25. 28	P	22·752		1. 35·42		U	22. 29. 25	22. 29. 52	213. 56		
		Titan			O	22·234			1. 45·26	L	22. 31. 8	22. 31. 35	202. 30		118. 23
		Saturn B.	22. 26. 34	22. 27. 1	P	23·730		1. 55·10							
		Titan			O	22·273									
Sept. 17	J	Saturn A.	19. 52. 15	19. 52. 41	P	21·278	40·053	0. 45·88		U	19. 54. 40	19. 55. 6	304. 54	90. 11	
		Titan			O	21·146			0. 56·21	L	19. 56. 41	19. 57. 7	324. 12		224. 44
		Saturn B.	19. 53. 26	19. 53. 52	P	22·287		1. 6·53							
		Titan			O	21·204									
		Saturn A.	21. 55. 52	21. 56. 18	O	21·624		0. 50·97		U	21. 58. 36	21. 59. 2	131. 59		
		Titan			P	21·063			0. 59·95	L	22. 0. 12	22. 0. 38	148. 43		230. 32
		Saturn B.	21. 57. 0	21. 57. 26	O	22·700		1. 8·93							
		Titan			P	20·915									
Sept. 18	WC	Saturn A.	21. 21. 0	21. 21. 25	P	21·643	40·040	1. 43·93		U	21. 30. 0	21. 30. 25	342. 32	90. 27	
		Titan			O	23·768			1. 53·18	L	21. 31. 30	21. 31. 55	351. 33		257. 30
		Saturn B.	21. 26. 30	21. 26. 55	P	22·598		2. 2·42							
		Titan			O	23·768									
Sept. 20	WC	Saturn A.	20. 58. 40	21. 59. 5	P	23·711	40·059	2. 50·44		U	20. 53. 30	20. 53. 55	0. 53	90. 26	
		Titan			O	25·156			2. 59·37	L	20. 56. 15	20. 56. 40	6. 11		273. 58
		Saturn B.	21. 0. 40	21. 1. 5	P	24·634		3. 8·30							
		Titan			O	25·156									
Sept. 27	M	Saturn B.	21. 18. 0	21. 18. 20	P	18·537	40·051			C	21. 15. 30	21. 15. 50	179. 20	90. 18	89. 38
		Titan			O	29·763									
		Saturn A.	21. 19. 30	21. 19. 50	P	18·567									
		Titan			O	29·763									
Sept. 28	J	Saturn A.	22. 1. 15	22. 1. 34	O	24·711	40·051	2. 59·34							
		Titan			P	24·608			3. 8·42						
		Saturn B.	22. 2. 30	22. 2. 49	O	25·685		3. 17·49							
		Titan			P	24·572									
Sept. 29	M	Saturn A.	20. 22. 26	20. 22. 44	P	20·302	40·028	2. 55·62		C	20. 21. 8	20. 21. 26	9. 29	90. 24	100. 18
		Titan			O	10·652			3. 3·95	C	20. 50. 25	20. 50. 43	190. 18		
		Saturn B.	20. 26. 52	20. 27. 10	P	19·553		3. 12·27							
		Titan			O	10·539									
		Saturn A.	20. 46. 16	20. 46. 34	P	18·930		2. 54·48							
		Titan			O	30·115			3. 3·13						
		Saturn B.	20. 48. 45	20. 49. 3	P	19·824		3. 11·78							
		Titan			O	30·115									
Sept. 30	J	Saturn A.	20. 32. 50	20. 33. 8	O	21·236	40·051	2. 24·78		C	20. 37. 0	20. 37. 18	15. 54	90. 21	
		Titan			P	26·297			2. 33·51	C	20. 55. 10	20. 55. 28	196. 34		106. 35
		Saturn B.	20. 34. 30	20. 34. 48	O	22·058		2. 42·24							
		Titan			P	26·377									
		Saturn A.	20. 46. 0	20. 46. 18	O	18·116		2. 23·58							
		Titan			P	14·515			2. 32·68						
		Saturn B.	20. 50. 15	20. 50. 33	O	17·328		2. 41·77							
		Titan			P	14·363									

TITAN—*continued.*

Day, 1875.	Observer.	Object.	Time by Sidereal Standard at observation of Distance.	Greenwich Sidereal Time at observation of Distance.	Micrometer.	Reading of Micrometer.	Instrumental Constant.	Concluded Distance in Arc.	Concluded Distance from Center of Saturn.	Limb or Center of Saturn.	Time by Sidereal Standard at observation of Position-angle.	Greenwich Sidereal Time at observation of Position-angle.	Reading of Position-circle.	Instrumental Constant.	Concluded Position-angle from Center of Saturn.
			h m s	h m s		rev.	rev.	′ ″	′ ″		h m s	h m s	° ′	° ′	° ′
Oct. 2	J	Saturn A.	20. 32. 0	20. 32. 17	O	20·811	40·041	0. 45·94		C	20. 35. 45	20. 36. 2	60. 56	90. 30	
		Titan			P	21·604			0. 55·59	C	21. 52. 0	21. 52. 17	243. 38		152. 47
		Saturn B.	20. 33. 30	20. 33. 47	O	21·636		1. 5·23							
		Titan			P	21·776									
		Saturn A.	21. 48. 50	21. 49. 7	O	19·614		0. 42·59							
		Titan			P	18·226			0. 52·20						
		Saturn B.	21. 50. 20	21. 50. 37	O	18·544		1. 1·81							
		Titan			P	18·303									
Oct. 5	J	Saturn A.	21. 34. 0	21. 34. 15	P	23·294	40·053	2. 25·40		C	21. 38. 30	21. 38. 45	357. 54	90. 29	
		Titan			O	24·273			2. 34·75	C	22. 20. 35	22. 20. 50	179. 55		269. 24
		Saturn B.	21. 35. 30	21. 35. 45	P	24·259		2. 44·09							
		Titan			O	24·274									
		Saturn A.	22. 13. 50	22. 14. 5	P	14·885		2. 26·74							
		Titan			O	17·585			2. 38·83						
		Saturn B.	22. 16. 10	22. 16. 25	P	13·622		2. 50·92							
		Titan			O	17·598									
Oct. 6	J	Saturn A.	20. 14. 15	20. 14. 29	P	24·114	40·061	2. 47·18		C	20. 17. 20	20. 17. 34	4. 43	90. 30	
		Titan			O	24·587			2. 55·93	C	21. 4. 20	21. 4. 34	185. 0		275. 22
		Saturn B.	20. 16. 5	20. 16. 19	P	25·018		3. 4·68							
		Titan			O	24·587									
		Saturn A.	20. 58. 35	20. 58. 49	P	14·988		2. 47·65							
		Titan			O	16·409			2. 56·25						
		Saturn B.	21. 0. 20	21. 0. 34	P	14·099		3. 4·85							
		Titan			O	16·409									
Oct. 11	M	Saturn A.	21. 26. 0	21. 26. 12	P	21·254	40·053	1. 3·63		C	21. 26. 0	21. 26. 12	332. 30	90. 21	
		Titan			O	15·511			1. 12·73	C	22. 34. 5	22. 34. 17	163. 54		68. 33
		Saturn B.	21. 28. 42	21. 28. 54	P	20·313		1. 21·82							
		Titan			O	15·512									
		Saturn A.	22. 34. 30	22. 34. 42	P	18·011		1. 6·68							
		Titan			O	25·488			1. 16·23						
		Saturn B.	22. 35. 45	22. 35. 57	P	18·948		1. 25·78							
		Titan			O	25·538									
Oct. 12	WC	Saturn B.	21. 4. 30	21. 4. 41	P	24·200	40·047	2. 14·08		C	21. 4. 0	21. 4. 11	171. 21	90. 12	
		Titan			O	22·776			2. 4·86	C	22. 39. 10	22. 39. 21	351. 17		81. 22
		Saturn A.	21. 5. 10	21. 5. 21	P	23·247		1. 55·64							
		Titan			O	22·776									
		Saturn A.	22. 41. 0	22. 41. 11	P	17·896		1. 59·88							
		Titan			O	15·956			2. 8·75						
		Saturn B.	22. 42. 30	22. 42. 41	P	16·979		2. 17·62							
		Titan			O	15·956									
Oct. 16	J	Saturn A.	21. 41. 50	21. 41. 58	O	22·284	40·053	2. 17·75		C	21. 45. 10	21. 45. 18	17. 36	90. 22	
		Titan			P	24·888			2. 27·02	C	21. 52. 50	21. 52. 58	197. 40		108. 0
		Saturn B.	21. 43. 10	21. 43. 18	O	23·242		2. 36·29							
		Titan			P	24·888									
		Saturn A.	21. 47. 0	21. 47. 8	O	17·299		2. 19·25							
		Titan			P	15·558			2. 28·28						
		Saturn B.	21. 51. 5	21. 51. 13	O	16·366		2. 37·30							
		Titan			P	15·558									
Oct. 21	J	Saturn A.	21. 36. 0	21. 36. 5	P	23·616	40·035	2. 23·52		C	21. 38. 45	21. 38. 50	358. 8	90. 24	268. 32
		Titan			O	23·836			2. 32·12						
		Saturn B.	21. 37. 20	21. 37. 25	P	24·556		2. 41·72							
		Titan			O	23·836									

TITAN—*concluded.*

Day, 1875,	Observer.	Object.	Time by Sidereal Standard at observation of Distance.	Greenwich Sidereal Time at observation of Distance.	Micrometer.	Reading of Micrometer.	Instrumental Constant.	Concluded Distance in Arc.	Concluded Distance from Center of Saturn.	Limb or Center of Saturn.	Time by Sidereal Standard at observation of Position-angle.	Greenwich Sidereal Time at observation of Position-angle.	Reading of Position-circle.	Instrumental Constant.	Concluded Position angle from Center of Saturn.
			h m s	h m s		rev.	rev.	′ ″	′ ″		h m s	h m s	° ′	° ′	° ′
Oct. 25	J	Saturn A.	20. 56. 30	20. 56. 30	P	21·978	40·050	1. 19·55		C	21. 0. 50	21. 0. 50	31. 48	90. 30	302. 11
		Titan			O	22·183			1. 28·33	C	21. 6. 40	21. 6. 40	211. 35		
		Saturn B.	20. 58. 40	20. 58. 40	P	22·885		1. 37·10							
		Titan			O	22·183									
		Saturn A.	21. 2. 45	21. 2. 45	P	18·204		1. 19·89							
		Titan			O	17·718			1. 28·03						
		Saturn B.	21. 5. 10	21. 5. 10	P	17·362		1. 36·17							
		Titan			O	17·718									
Nov. 4	J	Saturn A.	21. 20. 30	21. 21. 24	P	20·796	40·051	0. 49·49		C	21. 27. 0	21. 27. 54	319. 20	90. 18	229. 41
		Titan			O	21·812			0. 58·70	C	21. 33. 0	21. 33. 54	139. 25		
		Saturn B.	21. 22. 0	21. 22. 54	P	21·748		1. 7·90							
		Titan			O	21·812									
		Saturn A.	21. 28. 30	21. 29. 24	P	18·947		0. 50·74							
		Titan			O	18·482			0. 58·95						
		Saturn B.	21. 30. 30	21. 31. 24	P	18·098		1. 7·16							
		Titan			O	18·482									
Nov. 8	J	Saturn A.	21. 40. 40	21. 41. 31	P	23·954	40·075	2. 32·58		C	21. 44. 40	21. 45. 31	10. 28	90. 24	280. 53
		Titan			O	24·006			2. 41·42	C	22. 9. 0	22. 9. 51	190. 30		
		Saturn B.	21. 42. 0	21. 42. 51	P	24·868		2. 50·26							
		Titan			O	24·006									
		Saturn A.	22. 4. 0	22. 4. 51	P	16·259		2. 33·36							
		Titan			O	15·891			2. 42·40						
		Saturn B.	22. 6. 30	22. 7. 21	P	15·324		2. 51·44							
		Titan			O	15·891									
Nov. 1	M	Saturn A.	21. 26. 30	21. 27. 15	P	22·388	40·038	2. 47·07		C	21. 25. 20	21. 26. 5	185. 37	90. 12	95. 46
		Titan			O	26·284			2. 55·83	C	21. 49. 20	21. 50. 5	5. 30		
		Saturn B.	21. 29. 0	21. 29. 45	P	23·142		3. 4·58							
		Titan			O	26·435									
		Saturn A.	21. 50. 10	21. 50. 55	P	15·844		2. 21·65							
		Titan			O	16·874			(2. 33·01)						
		Saturn B.	21. 51. 25	21. 52. 10	P	14·842		2. 44·36							
		Titan			O	16·702									

RHEA.

Sept. 14	WC	Saturn A.	20. 8. 0	20. 8. 28	O	19·310	40·044	0. 36·52		U	20. 16. 0	20. 16. 28	357. 4	90. 18	76·18
		Rhea.....			P	22·621			0. 46·29	L	20. 24. 0	20. 24. 28	334. 55		
		Saturn B.	20. 11. 10	20. 11. 38	O	20·267		0. 56·06							
		Rhea.....			P	22·674									
		Saturn B.	22. 44. 30	22. 44. 58	O	18·329		1. 4·89		L	22. 35. 0	22. 35. 28	159. 15		79·34
		Rhea.....			P	18·362			0. 55·22	U	22. 38. 0	22. 38. 28	179. 17		
		Saturn A.	22. 48. 30	22. 48. 58	O	19·382		0. 45·54							
		Rhea.....			P	18·279									
Sept. 15	J	Saturn A.	21. 20. 0	21. 20. 27	O	21·845	40·055	1. 5·16		L	21. 23. 20	21. 23. 47	5. 7	90. 10	102. 40
		Rhea.....			P	21·577			1. 14·01	U	21. 26. 56	21. 27. 23	19. 53		
		Saturn B.	21. 21. 40	21. 22. 7	O	22·833		1. 22·86							
		Rhea.....			P	21·504									
		Saturn A.	22. 11. 24	22. 11. 51	P	21·412		1. 2·71		L	22. 16. 8	22. 16. 35	183. 25		101. 49
		Rhea.....			O	21·884			1. 11·68	U	22. 22. 15	22. 22. 42	199. 52		
		Saturn B.	22. 13. 50	22. 14. 17	P	22·318		1. 20·64							
		Rhea.....			O	21·904									

RHEA—*continued.*

Day, 1875.	Observer.	Object.	Time by Sidereal Standard at observation of Distance.	Greenwich Sidereal Time at observation of Distance.	Micrometer.	Reading of Micrometer.	Instrumental Constant.	Concluded Distance in Arc.	Concluded Distance from Center of Saturn.	Limb or Center of Saturn.	Time by Sidereal Standard at observation of Position-angle.	Greenwich Sidereal Time at observation of Position-angle.	Reading of Position-circle.	Instrumental Constant.	Concluded Position angle from Center of Saturn.
			h m s	h m s		rev.	rev.	′ ″	′ ″		h m s	h m s	° ′	° ′	°
Sept. 17	J	Saturn A.	19. 39. 8	19. 39. 34	P	21·567	40·053	1. 11·27		U	19. 43. 25	19. 43. 51	358. 39	90. 11	275. 24
		Rhea.....			O	22·169			1. 21·71	L	19. 46. 44	19. 47. 10	11. 47		
		Saturn B.	19. 40. 44	19. 41. 10	P	22·647		1. 32·15							
		Rhea.....			O	22·168									
		Saturn A.	21. 43. 40	21. 44. 6	O	22·319		1. 13·40		U	21. 48. 23	21. 48. 49	181. 42		278. 49
		Rhea.....			P	21·527			1. 23·06	L	21. 50. 48	21. 51. 14	195. 33		
		Saturn B.	21. 46. 4	21. 46. 30	O	23·426		1. 32·71							
		Rhea.....			P	21·418									
Sept. 18	WC	Saturn A.	21. 0. 30	21. 0. 55	P	20·465	40·040	0. 11·58		II	21. 15. 0	21. 15. 25	45. 35	90. 27	340. 48
		Rhea.....			O	20·173			0. 21·45	I	21. 17. 0	21. 17. 25	95. 6		
		Saturn B.	21. 6. 0	21. 6. 25	P	21·485		0. 31·31							
		Rhea.....			O	20·173									
Sept. 20	WC	Saturn A.	20. 47. 30	20. 47. 55	O	20·208	40·059	0. 33·00		U	20. 42. 30	20. 42. 55	40. 53	90. 26	119. 53
		Rhea.....			P	21·556			0. 42·15	L	20. 44. 30	20. 44. 55	18. 1		
		Saturn B.	20. 49. 40	20. 50. 5	O	21·154		0. 51·30							
		Rhea.....			P	21·556									
Sept. 27	M	Saturn A.	20. 43. 0	20. 43. 20	P	20·783	40·051			C	20. 43. 0	20. 43. 20	55. 6	90. 18	326. 30
		Rhea.....			O	21·163				C	20. 54. 30	20. 54. 50	237. 18		
		Saturn B.	20. 54. 30	20. 54. 50	P	18·678									
		Rhea.....			O	19·611									
Sept. 28	J	Saturn A.	21. 54. 10	21. 54. 29	O	21·638	40·051	1. 6·49		C	21. 58. 20	21. 58. 39	0. 20	90. 18	90. 38
		Rhea.....			P	21·849			1. 16·02						
		Saturn B.	21. 55. 35	21. 55. 54	O	22·486		1. 25·55							
		Rhea.....			P	21·986									
Sept. 2	M	Saturn A.	20. 15. 2	20. 15. 20	P	20·362	40·028	0. 39·26		C	20. 19. 8	20. 19. 26	24. 42	90. 24	116. 5
		Rhea.....			O	17·637			0. 48·21	C	20. 41. 48	20. 42. 6	206. 40		
		Saturn B.	20. 17. 17	20. 17. 35	P	19·324		0. 57·15							
		Rhea.....			O	17·751									
		Saturn A.	20. 37. 36	20. 37. 54	P	18·934		0. 40·42							
		Rhea.....			O	23·183			0. 49·53						
		Saturn B.	20. 40. 7	20. 40. 25	P	19·875		0. 58·63							
		Rhea.....			O	23·183									
Sept. 30	J	Saturn A.	21. 46. 10	21. 46. 28	P	18·263	40·051	0. 52·72		C	21. 55. 0	21. 55. 18	173. 35	90. 21	263. 56
		Rhea.....			O	19·064			1. 2·34						
		Saturn B.	21. 53. 0	21. 53. 18	P	17·156		1. 11·95							
		Rhea.....			O	19·177									
Oct. 2	J	Saturn A.	20. 17. 10	20. 17. 27	O	20·774	40·041	0. 25·91		C	20. 21. 15	20. 21. 32	338. 0	90. 30	70. 18
		Rhea.....			P	20·606			0. 36·04	C	21. 43. 45	21. 44. 2	161. 35		
		Saturn B.	20. 18. 30	20. 18. 47	O	21·748		0. 46·16							
		Rhea.....			P	20·678									
		Saturn A.	21. 38. 30	21. 38. 47	O	19·154		0. 31·43							
		Rhea.....			P	19·263			0. 41·78						
		Saturn B.	21. 40. 30	21. 40. 47	O	18·074		0. 52·13							
		Rhea.....			P	19·263									
Oct. 5	J	Saturn A.	21. 27. 50	21. 28. 5	P	21·214	40·053	1. 8·58		C	21. 32. 20	21. 32. 35	3. 25	90. 29	274. 21
		Rhea.....			O	22·383			1. 17·97	C	22. 12. 10	22. 12. 25	184. 18		
		Saturn B.	21. 29. 20	21. 29. 35	P	22·184		1. 27·35							
		Rhea.....			O	22·383									
		Saturn A.	22. 7. 45	22. 8. 0	P	17·369		1. 10·24							
		Rhea.....			O	19·054			1. 19·48						
		Saturn B.	22. 9. 35	22. 9. 50	P	16·415		1. 28·71							
		Rhea.....			O	19·054									

RHEA—*continued.*

Day, 1875.	Observer.	Object.	Time by Sidereal Standard at observation of Distance.	Greenwich Sidereal Time at observation of Distance.	Micrometer.	Reading of Micrometer.	Instrumental Constant.	Concluded Distance in Arc.	Concluded Distance from Center of Saturn.	Limb or Center of Saturn.	Time by Sidereal Standard at observation of Position-angle.	Greenwich Sidereal Time at observation of Position-angle.	Reading of Position-circle.	Instrumental Constant.	Concluded Position-angle from Center of Saturn.
			h m s	h m s		rev.	rev.	′ ″	′ ″		h m s	h m s	° ′	° ′	° ′
Oct. 6	J	Saturn A.	20. 5. 35	20. 5. 49	P	20·328	40·061			C	20. 11. 20	20. 11. 34	39. 48	90. 30	
		Rhea.....			O	20·415		0. 13·20		C	20. 53. 40	20. 53. 54	226. 16		313. 32
		Saturn B.	20. 6. 30	20. 6. 44	P	21·254			0. 22·16						
		Rhea.....			O	20·415		0. 31·12							
		Saturn A.	20. 49. 30	20. 49. 44	P	19·316									
		Rhea.....			O	19·740		0. 19·45							
		Saturn B.	20. 52. 10	20. 52. 24	P	18·363			0. 29·00						
		Rhea.....			O	19·706		0. 38·55							
Oct. 11	M	Saturn A.	21. 11. 20	21. 11. 32	P	20·844	40·053			C	21. 10. 10	21. 10. 22	336. 35	90. 21	
		Rhea.....			O	18·046		0. 22·51		C	22. 28. 30	22. 28. 42	161. 31		69. 24
		Saturn B.	21. 12. 40	21. 12. 52	P	19·742			0. 34·32						
		Rhea.....			O	17·928		0. 46·12							
		Saturn A.	22. 29. 20	22. 29. 32	P	17·786									
		Rhea.....			O	23·898		0. 31·56							
		Saturn B.	22. 30. 30	22. 30. 42	P	18·673			0. 39·09						
		Rhea.....			O	23·789		0. 46·61							
Oct. 12	WC	Saturn A.	21. 12. 0	21. 12. 11	P	21·336	40·047			C	21. 11. 20	21. 11. 31	188. 52	90. 12	
		Rhea.....			O	22·217		1. 7·85		C	22. 26. 0	22. 26. 11	10. 13		99. 45
		Saturn B.	21. 12. 40	21. 12. 51	P	22·229			1. 16·49						
		Rhea.....			O	22·217		1. 25·12							
		Saturn A.	22. 28. 0	22. 28. 11	P	18·787									
		Rhea.....			O	17·787		1. 7·20							
		Saturn B.	22. 29. 0	22. 29. 11	P	17·904			1. 15·75						
		Rhea.....			O	17·787		1. 24·30							
Oct. 16	J	Saturn A.	20. 22. 0	20. 22. 8	O	21·346	40·053			C	20. 28. 15	20. 28. 23	356. 16	90. 22	
		Rhea.....			P	21·621		0. 56·39		C	20. 34. 30	20. 34. 38	176. 30		86. 45
		Saturn B.	20. 25. 0	20. 25. 8	O	22·288			1. 5·51						
		Rhea.....			P	21·621		1. 14·62							
		Saturn A.	20. 35. 50	20. 35. 58	O	19·276									
		Rhea.....			P	17·733		0. 58·90							
		Saturn B.	20. 38. 10	20. 38. 18	O	18·403			1. 7·35						
		Rhea.....			P	17·733		1. 15·80							
Oct. 21	J	Saturn A.	21. 30. 50	21. 30. 55	O	21·868	40·035			C	21. 33. 30	21. 33. 35	7. 32	90. 24	97. 56
		Rhea.....			P	21·700		1. 8·37							
		Saturn B.	21. 31. 50	21. 31. 55	O	22·786			1. 17·25						
		Rhea.....			P	21·700		1. 26·13							
Oct. 25	J	Saturn A.	20. 44. 0	20. 44. 0	O	21·526	40·050			C	20. 47. 30	20. 47. 30	354. 59	90. 30	
		Rhea.....			P	21·320		0. 54·11		C	20. 54. 0	20. 54. 0	175. 4		85. 32
		Saturn B.	20. 45. 10	20. 45. 10	O	22·452			1. 3·07						
		Rhea.....			P	21·320		1. 12·03							
		Saturn A.	20. 50. 10	20. 50. 10	O	18·869									
		Rhea.....			P	18·355		0. 54·69							
		Saturn B.	20. 52. 0	20. 52. 0	O	18·002			1. 3·08						
		Rhea.....			P	18·355		1. 11·46							
Nov. 4	J	Saturn A.	21. 34. 0	21. 34. 54	O	18·583	40·051			C	21. 37. 20	21. 38. 14	197. 32	90. 18	
		Rhea.....			P	18·904		0. 49·62		C	21. 42. 0	21. 42. 54	17. 40		107. 54
		Saturn B.	21. 36. 0	21. 36. 54	O	17·813			0. 57·07						
		Rhea.....			P	18·904		1. 4·52							
		Saturn A.	21. 39. 20	21. 40. 14	O	20·816									
		Rhea.....			P	21·771		0. 49·08							
		Saturn B.	21. 41. 0	21. 41. 54	O	21·695			0. 57·58						
		Rhea.....			P	21·771		1. 6·08							

RHEA—*concluded.*

Day, 1875.	Observer.	Object.	Time by Sidereal Standard at observation of Distance.	Greenwich Sidereal Time at observation of Distance.	Micrometer.	Reading of Micrometer.	Instrumental Constant.	Concluded Distance in Arc.	Concluded Distance from Center of Saturn.	Limb or Center of Saturn.	Time by Sidereal Standard at observation of Position-angle.	Greenwich Sidereal Time at observation of Position-angle.	Reading of Position-circle.	Instrumental Constant.	Concluded Position-angle from Center of Saturn.
			h m s	h m s		rev.	rev.	′ ″	′ ″		h m s	h m s	° ′	° ′	° ′
Nov. 8	J	Saturn A.	21. 46. 10	21. 47. 1	O	21·007	40·075	2. 4·95		C	21. 48. 45	21. 49. 36	4. 36	90. 24	
		Rhea.....			P	25·525			2. 13·59	C	22. 3. 0	22. 3. 51	184. 36		95. 0
		Saturn B.	21. 47. 0	21. 47. 51	O	21·900		2. 22·23							
		Rhea			P	25·525									
		Saturn A.	21. 54. 15	21. 55. 6	O	18·148		1. 26·27							
		Rhea.....			P	17·469			1. 55·24						
		Saturn B.	21. 57. 40	21. 58. 31	O	17·221		1. 44·21							
		Rhea.....			P	17·469									
Nov. 15	M	Saturn A.	21. 35. 30	21. 36. 15	P	18·837	40·038	1. 4·33		C	21. 34. 30	21. 35. 15	190. 47	90. 12	
		Rhea.....			O	17·877			1. 10·75	C	21. 57. 50	21. 58. 35	18. 56		285. 4
		Saturn B.	21. 37. 20	21. 38. 5	P	18·019		1. 17·16							
		Rhea.....			O	18·032									
		Saturn A.	21. 58. 30	21. 59. 15	P	21·918		1. 2·43							
		Rhea.....			O	21·346			1. 11·07						
		Saturn B.	21. 59. 25	22. 0. 10	P	22·811		1. 19·70							
		Rhea.....			O	21·346									

DIONE.

Sept. 14	WC	Saturn A.	21. 3. 30	21. 3. 58	O	20·274	40·044	0. 19·70		U	21. 12. 20	21. 12. 48	47. 45	90. 18	
		Dione			P	20·788			0. 24·98	L	21. 14. 30	21. 14. 58	12. 38		120. 30
		Saturn B.	21. 9. 20	21. 9. 48	O	21·219		0. 30·25							
		Dione			P	20·788									
		Saturn B.	22. 29. 0	22. 29. 28	O	18·426		0. 32·24		L	22. 20. 0	22. 20. 28	194. 42		
		Dione			P	19·952			0. 23·02	U	22. 23. 0	22. 23. 28	243. 4		129. 11
		Saturn A.	22. 32. 0	22. 32. 28	O	19·447		0. 13·80							
		Dione			P	19·884									
Sept. 17	J	Saturn A.	21. 8. 20	21. 8. 46	P	20·439	40·053	0. 4·88		L	21. 14. 0	21. 14. 26	338. 31	90. 11	
		Dione			O	19·866			0. 14·98	U	21. 23. 2	21. 23. 28	175. 55		167. 24
		Saturn B.	21. 11. 2	21. 11. 28	P	21·465		0. 25·08							
		Dione			O	19·884									
Sept. 18	WC	Saturn A.	21. 37. 20	21. 37. 45	P	20·284	40·040	0. 29·92		U	21. 48. 0	21. 48. 25	9. 15	90. 27	
		Dione			O	21·302			0. 38·83	L	21. 53. 0	21. 53. 25	35. 46		292. 58
		Saturn B.	21. 42. 0	21. 42. 25	P	21·205		0. 47·74							
		Dione			O	21·302									
Sept. 20	WC	Saturn A.	20. 33. 30	20. 33. 55	P	21·498	40·059	0. 46·50		U	20. 27. 30	20. 27. 55	333. 24	90. 26	
		Dione			O	20·964			0. 54·78	L	20. 28. 40	20. 29. 5	3. 58		259. 7
		Saturn B.	20. 35. 0	20. 35. 25	P	22·353		1. 3·05							
		Dione			O	20·964									
Sept. 29	M	Saturn A.	21. 57. 30	21. 57. 48	P	20·976	40·028	0. 26·81		C	22. 1. 20	22. 1. 38	25. 14	90. 24	
		Dione			O	20·437			0. 35·84	C	22. 3. 35	22. 3. 53	202. 27		294. 15
		Saturn B.	21. 59. 50	22. 0. 8	P	21·905		0. 44·87							
		Dione			O	20·442									
		Saturn A.	22. 3. 35	22. 3. 53	P	20·579		0. 25·82							
		Dione			O	18·115			0. 33·63						
		Saturn B.	22. 6. 38	22. 6. 56	P	19·564		0. 41·43							
		Dione			O	18·323									
Sept. 30	J	Saturn A.	21. 13. 0	21. 13. 18	O	22·008	40·051	0. 46·87		C	21. 26. 30	21. 26. 48	6. 20	90. 21	
		Dione			P	20·465			0. 56·19	C	21. 43. 30	21. 43. 48	187. 23		97. 13
		Saturn B.	21. 15. 0	21. 15. 18	O	22·923		1. 5·51							
		Dione			P	20·513									

DIONE—*continued.*

Day, 1875.	Observer.	Object.	Time by Sidereal Standard at observation of Distance.	Greenwich Sidereal Time at observation of Distance.	Micrometer.	Reading of Micrometer.	Instrumental Constant.	Concluded Distance in Arc.	Concluded Distance from Center of Saturn.	Limb or Center of Saturn.	Time by Sidereal Standard at observation of Position-angle.	Greenwich Sidereal Time at observation of Position-angle.	Reading of Position-circle	Instrumental Constant.	Concluded Position-angle from Center of Saturn.
			h m s	h m s		rev.	rev.	′ ″	′ ″		h m s	h m s	° ′	° ′	° ′
Sept. 30	J	Saturn A.	21. 30. 30	21. 30. 48	O	18·963	40·051								
		Dione			P	18·633		0. 47·51							
		Saturn B.	21. 36. 30	21. 36. 48	O	18·232			0. 56·05						
		Dione			P	18·482		1. 4·58							
Oct. 5	J	Saturn A.	21. 41. 30	21. 41. 45	O	20·527	40·053			C	21. 45. 30	21. 45. 45	344. 19	90. 29	
		Dione			P	20·621		0. 21·19		C	22. 35. 0	22. 35. 15	171. 38		78. 28
		Saturn B.	21. 44. 0	21. 44. 15	O	21·446			0. 30·61						
		Dione			P	20·675		0. 40·02							
		Saturn A.	22. 26. 40	22. 26. 55	O	19·963									
		Dione			P	18·857		0. 23·86							
		Saturn B.	22. 28. 20	22. 28. 35	O	19·066			0. 33·30						
		Dione			P	18·779		0. 42·73							
Oct. 6	J	Saturn A.	20. 38. 10	20. 38. 24	O	20·298	40·061			C	20. 42. 30	20. 42. 44	30. 0	90. 30	
		Dione			P	20·700		0. 18·14		C	21. 38. 0	21. 38. 14	210. 54		120. 57
		Saturn B.	20. 40. 20	20. 40. 34	O	21·134			0. 26·90						
		Dione			P	20·770		0. 35·66							
		Saturn A.	21. 34. 50	21. 35. 4	O	19·784									
		Dione			P	19·486		0. 15·31							
		Saturn B.	21. 36. 35	21. 36. 49	O	18·898			0. 23·67						
		Dione			P	19·508		0. 32·03							
Oct. 11	M	Saturn A.	21. 4. 40	21. 4. 52	P	20·563	40·053			C	21. 2. 50	21. 3. 2	7. 25	90. 21	
		Dione			O	17·201		0. 44·29		C	22. 17. 30	22. 17. 42	188. 40		98. 24
		Saturn B.	21. 7. 20	21. 7. 32	P	19·632			0. 54·12						
		Dione			O	17·117		1. 3·94							
		Saturn A.	22. 21. 30	22. 21. 42	P	18·237									
		Dione			O	24·340		0. 48·85							
		Saturn B.	22. 23. 45	22. 23. 57	P	19·053			0. 57·32						
		Dione			O	24·400		1. 5·79							
Oct. 12	WC	Saturn A.	21. 33. 30	21. 33. 41	O	20·811	40·047			C	21. 31. 30	21. 31. 41	174. 57	90. 12	
		Dione			P	20·965		0. 33·46		C	22. 10. 0	22. 10. 11	355. 37		265. 29
		Saturn B.	21. 35. 0	21. 35. 11	O	21·749			0. 42·54						
		Dione			P	20·965		0. 51·61							
		Saturn A.	22. 11. 30	22. 11. 41	O	19·885									
		Dione			P	18·235		0. 37·30							
		Saturn B.	22. 12. 10	22. 12. 21	O	19·045			0. 45·43						
		Dione			P	18·235		0. 53·55							
Oct. 16	J	Saturn A.	21. 13. 10	21. 13. 18	O	21·118	40·053			C	21. 19. 30	21. 19. 38	347. 29	90. 22	
		Dione			P	20·184		0. 24·16		C	21. 30. 30	21. 30. 38	167. 39		77. 56
		Saturn B.	21. 14. 50	21. 14. 58	O	21·972			0. 32·44						
		Dione			P	20·184		0. 40·70							
		Saturn A.	21. 25. 30	21. 25. 38	O	19·415									
		Dione			P	19·344		0. 25·04							
		Saturn B.	21. 28. 10	21. 28. 18	O	18·576			0. 33·16						
		Dione			P	19·344		0. 41·28							
Oct. 21	J	Saturn A.	21. 49. 30	21. 49. 35	P	20·535	40·035			C	21. 53. 50	21. 53. 55	29. 31	90. 24	299. 55
		Dione			O	20·703		0. 23·28							
		Saturn B.	21. 51. 40	21. 51. 45	P	21·500			0. 32·62						
		Dione			O	20·703		0. 41·96							
Oct. 25	J	Saturn A.	21. 11. 30	21. 11. 30	O	20·668	40·050			C	21. 15. 30	21. 15. 30	3. 14	90. 30	
		Dione			P	21·186		0. 34·91		C	21. 26. 15	21. 26. 15	183. 20		93. 49
		Saturn B.	21. 13. 10	21. 13. 10	O	21·533			0. 43·28						
		Dione			P	21·186		0. 51·64							

DIONE—*concluded.*

Day, 1875.	Observer.	Object.	Time by Sidereal Standard at observation of Distance.	Greenwich Sidereal Time at observation of Distance.	Micrometer.	Reading of Micrometer.	Instrumental Constant.	Concluded Distance in Arc.	Concluded Distance from Center of Saturn.	Limb or Center of Saturn.	Time by Sidereal Standard at observation of Position-angle.	Greenwich Sidereal Time at observation of Position-angle.	Reading of Position-circle.	Instrumental Constant.	Concluded Position-angle from Center of Saturn.
			h m s	h m s		rev.	rev	′ ″	′ ″		h m s	h m s	° ′	° ′	° ′
Oct. 25	J	Saturn A.			O	19·317	40·050								
		Dione	21. 20. 50	21. 20. 50	P	18·915		0. 35·18	0. 44·28						
		Saturn B.			O	18·377									
		Dione	21. 22. 0	21. 22. 0	P	18·915		0. 53·38							

TETHYS.

Sept. 14	WC	Saturn A.			P	19·993	40·044			U	21. 26. 0	21. 26. 28	319. 25	90. 18	
		Tethys ...	21. 19. 40	21. 20. 8	O	20·724		0. 13·02	0. 22·38	L	21. 32. 0	21. 32. 28	9. 40		254. 51
		Saturn B.			P	20·960									
		Tethys ...	21. 22. 40	21. 23. 8	O	20·724		0. 31·73							
		Saturn B.			P	18·244				L	21. 37. 30	21. 37. 58	188. 11		
		Tethys ...	21. 44. 30	21. 44. 58	O	20·068		0. 33·52	0. 23·92	U	21. 41. 0	21. 41. 28	141. 22		255. 5
		Saturn A.			P	19·244									
		Tethys ...	21. 50. 0	21. 50. 28	O	20·060		0. 14·32							
Sept. 17	J	Saturn A.			P	20·623	40·053			U	20. 8. 8	20. 8. 34	192. 21	90. 11	
		Tethys ...	20. 3. 48	20. 4. 14	O	20·655		0. 23·71	0. 33·37	L	20. 11. 28	20. 11. 54	158. 10		85. 27
		Saturn B.			P	21·510									
		Tethys ...	20. 4. 50	20. 5. 16	O	20·766		0. 43·02							
		Saturn A.			O	20·763				U	22. 10. 48	22. 11. 14	11. 29		
		Tethys ...	22. 6. 45	22. 7. 11	P	20·774		0. 28·72	0. 39·14	L	22. 15. 41	22. 16. 7	348. 37		90. 14
		Saturn B.			O	21·684									
		Tethys ...	22. 9. 40	22. 10. 6	P	20·930		0. 49·56							
Sept. 18	WC	Saturn A.			P	20·466	40·040			U	22. 12. 30	22. 12. 55	350. 57	90. 27	
		Tethys ...	21. 59. 30	21. 59. 55	O	20·390		0. 15·79	0. 24·36	L	22. 19. 0	22. 19. 25	13. 25		272. 38
		Saturn B.			P	21·351									
		Tethys ...	22. 7. 0	22. 7. 25	O	20·390		0. 32·92							
Sept. 20	WC	Saturn A.			P	20·194	40·059			U	20. 7. 20	20. 7. 45	350. 13	90. 26	
		Tethys ...	19. 58. 30	19. 58. 55	O	21·683		0. 35·18	0. 44·88	L	20. 10. 20	20. 10. 45	15. 41		273. 23
		Saturn B.			P	21·196									
		Tethys ...	20. 1. 30	20. 1. 55	O	21·683		0. 54·57							
		Saturn A.			P	20·363									
		Tethys ...	20. 4. 0	20. 4. 25	O	21·673		0. 38·26	0. 47·48						
		Saturn B.			P	21·316									
		Tethys ...	20. 5. 0	20. 5. 25	O	21·673		0. 56·70							
Oct. 2	J	Saturn A.			O	20·268	40·041			C	21. 22. 45	21. 23. 2	338. 24	90. 30	68. 54
		Tethys ...	21. 18. 45	21. 19. 2	P	20·486		0. 13·80	0. 23·08						
		Saturn B.			O	21·226									
		Tethys ...	21. 20. 0	21. 20. 17	P	20·487		0. 32·35							
Oct. 5	J	Saturn A.			P	20·276	40·053			C	21. 26. 30	21. 26. 45	359. 25	90. 29	
		Tethys ...	21. 21. 0	21. 21. 15	O	21·323		0. 29·92	0. 39·53	C	22. 6. 40	22. 6. 55	181. 18		270. 51
		Saturn B.			P	21·174									
		Tethys ...	21. 22. 30	21. 22. 45	O	21·418		0. 49·13							
		Saturn A.			P	19·848									
		Tethys ...	22. 0. 5	22. 0. 20	O	18·595		0. 31·15	0. 40·99						
		Saturn B.			P	18·831									
		Tethys ...	22. 2. 0	22. 2. 15	O	18·596		0. 50·82							
Oct. 6	J	Saturn A.			O	21·195	40·061			C	20. 33. 20	20. 33. 34	358. 30	90. 30	
		Tethys ...	20. 29. 45	20. 29. 59	P	20·581		0. 33·19	0. 41·99	C	21. 29. 30	21. 29. 44	181. 34		90. 32
		Saturn B.			O	22·071									
		Tethys ...	20. 31. 30	20. 31. 44	P	20·614		0. 50·78							

TETHYS—*concluded.*

Day, 1875.	Observer.	Object.	Time by Sidereal Standard at observation of Distance.	Greenwich Sidereal Time at observation of Distance.	Micrometer.	Reading of Micrometer.	Instrumental Constant.	Concluded Distance in Arc.	Concluded Distance from Center of Saturn.	Limb or Center of Saturn.	Time by Sidereal Standard at observation of Position-angle.	Greenwich Sidereal Time at observation of Position-angle.	Reading of Position-circle.	Instrumental Constant.	Concluded Position-angle from Center of Saturn.
			h m s	h m s		rev.	rev.	′ ″	′ ″		h m s	h m s	° ′	° ′	° ′
Oct. 6	J	Saturn A.	21. 26. 40	21. 26. 54	O	19·194	40·061	0. 33·64	0. 43·13						
		Tethys ...			P	19·129									
		Saturn B.	21. 27. 50	21. 28. 4	O	18·213		0. 52·61							
		Tethys ...			P	19·129									
Oct. 11	M	Saturn A..	21. 17. 50	21. 18. 2	P	19·938	40·053	0. 29·86	0. 39·32	C	21. 16. 35	21. 16. 47	13. 14	90. 21	286. 13
		Tethys ...			O	21·658				C	22. 8. 45	22. 8. 57	198. 30		
		Saturn B.	21. 19. 20	21. 19. 32	P	20·890		0. 48·77							
		Tethys ...			O	21·683									
		Saturn A.	22. 9. 50	22. 10. 2	P	19·236		0. 28·68	0. 37·50						
		Tethys ...			O	19·335									
		Saturn B.	22. 13. 30	22. 13. 42	P	18·268		0. 46·31							
		Tethys ...			O	19·392									
Oct. 12	WC	Saturn A.	21. 21. 10	21. 21. 21	P	21·211	40·047	0. 24·19	0. 33·55	C	21. 20. 0	21. 20. 11	197. 2	90. 12	107. 14
		Tethys ...			O	20·086									
		Saturn B.	21. 22. 0	21. 22. 11	P	22·178		0. 42·90							
		Tethys ...			O	20·086									
Oct. 21	J	Saturn A.	21. 23. 40	21. 23. 45	O	20·448	40·035	0. 22·26	0. 32·17	C	21. 29. 30	21. 29. 35	352. 28	90. 24	85. 10
		Tethys ...			P	20·737				C	22. 11. 30	22. 11. 35	177. 3		
		Saturn B.	21. 26. 50	21. 26. 55	O	21·472		0. 42·07							
		Tethys ...			P	20·737									
		Saturn A.	22. 3. 30	22. 3. 35	O	19·109		0. 22·64	0. 30·24						
		Tethys ...			P	19·756									
		Saturn B.	22. 4. 30	22. 4. 35	O	18·324		0. 37·84							
		Tethys ...			P	19·756									
Oct. 25	J	Saturn A.	22. 11. 20	22. 11. 20	O	20·238	40·050	0. 31·06	0. 38·77	C	22. 15. 30	22. 15. 30	20. 27	90. 30	111. 13
		Tethys ...			P	21·417				C	22. 27. 30	22. 27. 30	200. 59		
		Saturn B.	22. 13. 30	22. 13. 30	O	21·035		0. 46·48							
		Tethys ...			P	21·417									
		Saturn A.	22. 19. 20	22. 19. 20	O	19·663		0. 30·75	0. 39·36						
		Tethys ...			P	18·798									
		Saturn B.	22. 21. 30	22. 21. 30	O	18·773		0. 47·96							
		Tethys ...			P	18·798									
Nov. 8	J	Saturn A.	21. 35. 50	21. 36. 41	P	20·042	40·075	0. 24·13	0. 33·16	C	22. 31. 10	22. 32. 1	355. 44	90. 24	266. 17
		Tethys ...			O	21·280				C	22. 46. 0	22. 46. 51	176. 2		
		Saturn B.	21. 37. 0	21. 37. 51	P	20·975		0. 42·19							
		Tethys ...			O	21·280									
		Saturn A.	22. 40. 30	22. 41. 21	P	19·726		0. 27·56	0. 36·40						
		Tethys ...			O	18·925									
		Saturn B.	22. 42. 10	22. 43. 1	P	18·813		0. 45·23							
		Tethys ...			O	18·925									
Nov. 15	M	Saturn A.	22. 44. 40	22. 45. 25	P	20·238	40·038	0. 21·64	0. 29·91	C	22. 42. 50	22. 43. 35	200. 13	90. 12	110. 12
		Tethys ...			O	20·918				C	22. 48. 10	22. 48. 55	19. 47		
		Saturn B.	22. 45. 20	22. 46. 5	P	21·073		0. 38·18							
		Tethys ...			O	20·938									
		Saturn A.	22. 49. 40	22. 50. 25	P	19·598		0. 19·41	0. 27·58						
		Tethys ...			O	19·437									
		Saturn B.	22. 50. 50	22. 51. 35	P	18·847		0. 35·74							
		Tethys ...			O	19·344									

NOTES.

The distances of the Satellite were measured alternately from the nearer limb A and the more distant limb B of the planet. The position-angles of the Satellite, before September 21, alternately from the two limbs of the planet, by placing the single wire tangentially on one limb and on the Satellite. On September 21, two new wires were inserted parallel to this wire, and at a distance corresponding to the angular radius of Saturn on either side, and from this date the position-angles were measured from the center of Saturn, by placing the middle wire on the Satellite and the two parallel wires tangentially on the limbs of the planet. Two observations in reversed positions of the micrometer were usually made. The position-angles are reckoned from the N. point (true), in the direction N, E, S, W.

September 14. Saturn was very tremulous and diffused at times. Iapetus, Dione, and Tethys were very faint, and were observed in a slightly illuminated field. The belt of Saturn was very conspicuous, but the colour was scarcely so marked as when seen a week previously. The curvature of the shadow of the ball on the ring was very well seen, the definition being occasionally very good.

September 15 and 17. The measures were made with great difficulty.

September 18. Sky very hazy; the observations were difficult, but the definition of the planet was very good for a few moments at a time. The belt was again very conspicuous and reddish, and the planet appeared brighter than the ring where it crossed the ball. The shadow on the ring was curved as on September 14.

September 20. Sky rather hazy.

September 28. Saturn very tremulous.

September 29. Dione was exceedingly faint and difficult to measure, and was only seen at long intervals. All the observations were made with the wires illuminated on a dark field. Saturn was occasionally well defined, but in general the limbs were diffused.

September 30. The planet tremulous.

October 2. At the first observation of Titan the image of Saturn was tremulous, otherwise it was very good.

October 5. The planet tremulous at the second observation of Titan; Dione very faint.

October 6. Dione and Tethys very faint.

October 11. The first measures of Titan, Rhea, and Dione were made under favourable circumstances, but before the second series of measures the limbs of Saturn became very tremulous, and Tethys especially was difficult to measure owing to its faintness.

October 12. Iapetus, Dione, and Tethys faint. The illuminated wires on a dark field were used throughout the observations.

October 16. Saturn very tremulous; Dione very faint.

October 17. Dione very faint; the image of the planet good.

October 25. Sky rather misty; Dione and Tethys were very faint and the planet's limbs much diffused.

November 4. Sky rather hazy; Iapetus faint.

November 8. Iapetus and Tethys faint; Titan and Rhea observed through thin cloud.

November 15. Tethys very faint; Saturn also was faint, but free from tremor in the first series of measures. In the second series the planet was diffused and tremulous.

ROYAL OBSERVATORY, GREENWICH.

ECLIPSES, OCCULTATIONS, AND TRANSITS

OF

JUPITER'S SATELLITES,

COMPARED WITH THE NAUTICAL ALMANAC:

AND

OCCULTATIONS OF STARS BY THE MOON,

WITH THE

EQUATIONS DEDUCED FROM THE OCCULTATIONS.

1875.

ECLIPSES, OCCULTATIONS, and TRANSITS of JUPITER'S SATELLITES, 1875.

Day of Observation, 1875.	Satellite.	Phenomenon.	Phase of Phenomenon.	Observer.	Instrument.	Power.	Clock or Chronometer.	Time Noted.	Time by Transit Clock.	Sidereal Time.	Mean Solar Time.	Mean Time of Nautical Almanac.	Apparent Error of Nautical Almanac.
								h m s	h m s	h m s	h m s	h m s	m s
Mar. 4	III	Tr. Egress..	Bisection	WC	S.E. Eq.	220	A.82	11. 11. 0	11. 17. 16	11. 17. 20	12. 27. 56		
4	III	Tr. Egress..	Last contact.....	WC	S.E. Eq.	,,	A.82	11. 18. 0	11. 24. 16	11. 24. 20	12. 34. 55	12. 38.	
4	III	(*a*) Tr. Egress	Last contact.....	AD	E. Eq.	140	A .1	11. 28. 10	11. 27. 26	11. 27. 31	12. 38. 5		
Apr. 5	I	Tr. Ingress..	First External Contact	M	S.E. Eq.	310	Sid.S.	11. 14. 0	11. 14. 0	11. 14. 17	10. 15. 9		
5	I	Tr. Ingress..	Bisection	M	S.E. Eq.	,,	Sid.S.	11. 16. 0	11. 16. 0	11. 16. 17	10. 17. 8	10. 21.	
5	I	Tr. Ingress..	2nd Internal Contact	M	S.E. Eq.	,,	Sid.S.	11. 17. 45	11. 17. 45	11. 18. 2	10. 18. 53		
5	I	Tr. Egress..	Internal contact..	M	S.E. Eq.	,,	Sid.S.	13. 22. 30	13. 22. 30	13. 22. 47	12. 23. 17		
5	I	Tr. Egress..	Bisection	M	S.E. Eq.	,,	Sid.S.	13. 25. 0	13. 25. 0	13. 25. 17	12. 25. 47	12. 32.	
5	I	Tr. Egress..	External contact.	M	S.E. Eq.	,,	Sid.S.	13. 27. 20	13. 27. 20	13. 27. 37	12. 28. 7		
5	III	(*b*) Ecl. disap.	....	M	S.E. Eq.	,,	Sid.S.	14. 7. 20·0	14. 7. 20·0	14. 7. 37·3	13. 8. 0·1	13. 6. 27·5	−1. 32·6
13	I	(*c*) Ecl. disap.	....	M	S.E. Eq.	130	Sid.S.	10. 45. 18·0	10. 45. 18·0	10. 45. 38·9	9. 19. 3·3	9. 19. 11·6	+0. 8·3
13	I	Occ. reap. ..	First contact	AD	E. Eq.	310	A. 1	12. 59. 0	12. 58. 31	12. 58. 52	11. 31. 55		
13	I	Occ. reap....	Last contact.....	AD	E. Eq.	,,	A. 1	13. 1. 25	13. 0. 56	13. 1. 17	11. 34. 19	11. 34.	
13	I	Occ. reap....	First contact	M	S.E. Eq.	140	Sid.S.	12. 58. 10	12. 58. 10	12. 58. 31	11. 31. 34		
13	I	Occ. reap....	Last contact.....	M	S.E. Eq.	,,	Sid.S.	12. 59. 38	12. 59. 38	12. 59. 59	11. 33. 1		
16	III	(*d*) Tr. Egress	Bisection	WC	S.E. Eq.	220	A.82	10. 14. 0	10. 18. 37	10. 19. 0	8. 40. 41	8. 50.	
16	III	(*d*) Tr. Egress	Last contact.....	WC	S.E. Eq.	,,	A.82	10. 23. 30	10. 28. 7	10. 28. 30	8. 50. 9		
18	II	(*e*) Occ. disap.	First contact	WC	S.E. Eq.	310	Sid.S.	13. 11. 10	13. 11. 10	13. 11. 34	11. 24. 55		
18	II	Occ. disap...	Bisection	WC	S.E. Eq.	,,	Sid.S.	13. 13. 0	13. 13. 0	13. 13. 24	11. 26. 44		
18	II	Occ. disap...	Last contact.....	WC	S.E. Eq.	,,	Sid.S.	13. 15. 0	13. 15. 0	13. 15. 24	11. 28. 44	11. 26.	
18	II	Occ. disap...	First contact	T	E. Eq.	70	A. 1	13. 7. 0	13. 6. 16	13. 6. 40	11. 20. 1		
18	II	Occ. disap...	Bisection	T	E. Eq.	,,	A. 1	13. 10. 0	13. 9. 16	13. 9. 40	11. 23. 1		
18	II	Occ. disap...	Last contact.....	T	E. Eq.	,,	A. 1	13. 13. 30	13. 12. 46	13. 13. 10	11. 26. 30		
20	II	Tr. Egress..	First contact	C	N. Eq.	...	Sid.S.	10. 32. 0	10. 32. 0	10. 32. 25	8. 38. 20	8. 43.	
20	II	Tr. Egress..	Last contact.....	C	N. Eq.	...	Sid.S.	10. 34. 30	10. 34. 30	10. 34. 55	8. 40. 50		
20	I	Occ. disap...	First contact	C	N. Eq.	...	Sid.S.	12. 59. 0	12. 59. 0	12. 59. 25	11. 4. 56	11. 6.	

(*a*.) The planet was ill-defined. (*b*.) Dichotomized at about 3^m. 20^s. before the time recorded above. (*c*.) Tremulous.
(*d*.) Satellite bright on dark north polar belt; definition too bad to observe first contact, but much better at last contact; sky very hazy.
(*e*.) Light clouds; limbs very tremulous.

ECLIPSES, OCCULTATIONS, and TRANSITS of JUPITER'S SATELLITES—*continued.*

Day of Observation, 1875.	Satellite.	Phenomenon.	Phase of Phenomenon.	Observer.	Instrument.	Power.	Clock or Chronometer.	Time noted.	Time by Transit Clock.	Sidereal Time.	Mean Solar Time.	Mean Time of Nautical Almanac.	Apparent Error of Nautical Almanac.
								h m s	h m s	h m s	h m s	h m s	m s
Apr. 20	I	Occ. disap...	Bisection	C	N. Eq.	...	Sid. S.	13. 0. 45	13. 0. 45	13. 1. 10	11. 6. 41	11. 6.	
20	I	Occ. disap...	Last contact.....	C	N. Eq.	...	Sid. S.	13. 2. 30	13. 2. 30	13. 2. 55	11. 8. 26		
20	I	Ecl. reap....	....	C	Altaz.	100	Sid. S.	15. 18. 13·1	15. 18. 13·1	15. 18. 37·9	13. 23. 46·4	13. 20. 53·9	−2. 52·5
23	III	Tr. Egress ..	First contact	M	S.E. Eq.	130	Sid. S.	14. 4. 0	14. 4. 0	14. 4. 26	11. 57. 59		
23	III	Tr. Egress ..	Bisection	M	S.E. Eq.	,,	Sid. S.	14. 7. 50	14. 7. 50	14. 8. 16	12. 1. 49	12. 9.	
23	III	Tr. Egress ..	Last contact.....	M	S.E. Eq.	,,	Sid. S.	14. 18. 30	14. 18. 30	14. 18. 56	12. 12. 27		
29	I	(*a*) Ecl. reap.	....	WC	S.E. Eq.	220	Sid. S.	12. 12. 11·0	12. 12. 11·0	12. 12. 40·8	9. 42. 56·5	9. 43. 12·7	+0. 16·2
29	I	Ecl. reap....	....	AD	E. Eq.	140	A. 1	12. 13. 38·0	12. 12. 33·7	12. 13. 3·5	9. 43. 19·2	9. 43. 12·7	−0. 6·5
May 4	II	Tr. Ingress..	Bisection	T	E. Eq.	,,	A. 1	16. 4. 0	16. 2. 45	16. 3. 18	13. 13. 16	13. 10.	
4	II	Tr. Ingress..	Last contact	T	E. Eq.	,,	A. 1	16. 7. 0	16. 5. 45	16. 6. 18	13. 16. 16		
6	II	(*b*) Ecl. reap.	....	AD	E. Eq.	220	A. 1	11. 22. 40·0	11. 22. 20·9	11. 22. 55·1	8. 25. 47·6	8. 27. 31·3	+1. 43·7
6	II	Ecl. reap....	....	M	S.E. Eq.	140	Sid. S.	11. 21. 30·0	11. 21. 30·0	11. 22. 4·2	8. 24. 56·8	8. 27. 31·3	+2. 34·5
6	I	Occ. disap...	First contact	AD	E. Eq.	,,	A. 1	11. 53. 30	11. 53. 11	11. 53. 45	8. 56. 33		
6	I	Occ. disap...	Bisection	AD	E. Eq.	,,	A. 1	11. 55. 40	11. 55. 21	11. 55. 55	8. 58. 42		
6	I	Occ. disap...	Last contact.....	AD	E. Eq.	,,	A. 1	11. 57. 15	11. 56. 56	11. 57. 30	9. 0. 17		
6	I	(*c*) Occ. disap.	First contact	M	S.E. Eq.	220	Sid. S.	11. 54. 42	11. 54. 42	11. 55. 16	8. 58. 3	9. 0.	
6	I	Occ. disap...	Bisection	M	S.E. Eq.	,,	Sid. S.	11. 56. 50	11. 56. 50	11. 57. 24	9. 0. 11		
6	I	Occ. disap...	Last contact.....	M	S.E. Eq.	,,	Sid. S.	11. 58. 35	11. 58. 35	11. 59. 9	9. 1. 56		
11	III	(*d*) Ecl. disap.	....	C	E. Eq.	140	A. 1	12. 19. 0·0	12. 19. 17·2	12. 19. 7·4	9. 2. 11·2	8. 58. 27·6	−3. 43·6
13	I	Occ. disap...	First contact	T	E. Eq.	,,	A. 1	14. 8. 30	14. 7. 59	14. 8. 36	10. 43. 30		
13	I	Occ. disap...	Bisection	T	E. Eq.	,,	A. 1	14. 9. 30	14. 8. 59	14. 9. 36	10. 44. 30	10. 45.	
13	I	Occ. disap...	Last contact.....	T	E. Eq.	,,	A. 1	14. 10. 30	14. 9. 59	14. 10. 36	10. 45. 30		
13	II	Ecl. disap...	....	T	E. Eq.	,,	A. 1	14. 28. 30·0	14. 27. 58·7	14. 28. 36·1	11. 3. 26·7	11. 4. 16·9	+0. 50·2
18	III	(*e*) Occ. disap.	First contact	WC	S.E. Eq.	310	A. 82	13. 29. 0	13. 38. 37	13. 39. 14	9. 54. 33		
18	III	Occ. disap...	Bisection	WC	S.E. Eq.	,,	A. 82	13. 33. 30	13. 43. 7	13. 43. 44	9. 59. 2	10. 1.	
18	III	Occ. disap...	Last contact.....	WC	S.E. Eq.	,,	A. 82	13. 44. 20	13. 53. 57	13. 54. 34	10. 9. 50		

(*a*.) Definition not very good; the satellite attained its full brightness about 3ᵐ. after the times recorded above.
(*b*.) The satellite attained its full brightness about 3ᵐ. after the times recorded above.
(*d*.) Doubtful; cloudy.
(*c*.) Very tremulous at times.
(*e*.) Tremulous; definition very variable.

ECLIPSES, OCCULTATIONS, and TRANSITS of JUPITER'S SATELLITES—*concluded.*

Day of Observation, 1875.	Satellite.	Phenomenon.	Phase of Phenomenon.	Observer.	Instrument.	Power.	Clock or Chronometer.	Time noted.	Time by Transit Clock.	Sidereal Time.	Mean Solar Time.	Mean Time of Nautical Almanac.	Apparent Error of Nautical Almanac.
								h m s	h m s	h m s	h m s	h m s	m s
May 18	III	Occ. disap...	First contact	C	E. Eq.	310	A. 1	13. 44. 30	13. 44. 0	13. 44. 37	9. 59. 55	10. 1.	
18	III	Occ. disap...	Last contact.....	C	E. Eq.	,,	A. 1	13. 54. 0	13. 53. 30	13. 54. 7	10. 9. 24		
18	III	(*a*) Occ. reap.	First contact	WC	S.E. Eq.	,,	A.82	15. 39. 0	15. 48. 44	15. 49. 21	12. 4. 19		
18	III	Occ. reap....	Bisection	WC	S.E. Eq.	,,	A.82	15. 44. 30	15. 54. 14	15. 54. 51	12. 9. 48		
18	III	Occ. reap....	Last contact.....	WC	S.E. Eq.	,,	A.82	15. 46. 30	15. 56. 14	15. 56. 51	12. 11. 48	12. 9.	
18	III	(*b*) Occ. reap.	First contact	C	E. Eq.	,,	A. 1	15. 51. 0	15. 50. 30	15. 51. 7	12. 6. 4		
18	III	Occ. reap....	Last contact.....	C	E. Eq.	,,	A. 1	15. 58. 0	15. 57. 30	15. 58. 7	12. 13. 3		
21	I	Tr. Egress ..	First contact	G	E. Eq.	,,	A. 1	15. 49. 30	15. 48. 57	15. 49. 33	11. 52. 43		
21	I	Tr. Egress ..	Bisection	G	E. Eq.	,,	A. 1	15. 53. 45	15. 53. 12	15. 53. 48	11. 56. 58	11. 54.	
21	I	Tr. Egress ..	Last contact.....	G	E. Eq.	,,	A. 1	15. 59. 0	15. 58. 27	15. 59. 3	12. 2. 12		
22	I	Ecl. reap....	....	C	E. Eq.	140	A. 1	13. 54. 37·0	13. 54. 3·0	13. 54. 39·2	9. 54. 12·2	9. 54. 3·6	— 0. 8·6
June 12	II	Tr. Ingress..	First contact	T	E. Eq.	,,	A. 1	16. 51. 30	16. 48. 20	16. 48. 46	11. 25. 17		
12	II	Tr. Ingress..	Bisection	T	E. Eq.	,,	A. 1	16. 53. 0	16. 49. 50	16. 50. 16	11. 26. 46	11. 26.	
12	II	Tr. Ingress..	Last contact.....	T	E. Eq.	,,	A. 1	16. 55. 0	16. 51. 50	16. 52. 16	11. 28. 46		
12	I	Occ. disap...	First contact	T	E. Eq.	,,	A. 1	17. 41. 30	17. 38. 20	17. 38. 46	12. 15. 8		
12	I	Occ. disap...	Bisection	T	E. Eq.	,,	A. 1	17. 42. 30	17. 39. 20	17. 39. 46	12. 16. 8	12. 21.	
12	I	Occ. disap...	Last contact	T	E. Eq.	,,	A. 1	17. 43. 30	17. 40. 20	17. 40. 46	12. 17. 8		
12	III	Tr. Egress ..	First contact	T	E. Eq.	,,	A. 1	17. 49. 15	17. 46. 5	17. 46. 31	12. 22. 52		
12	III	Tr. Egress ..	Bisection	T	E. Eq.	,,	A. 1	17. 51. 30	17. 48. 20	17. 48. 46	12. 25. 7	12. 28.	
12	III	Tr. Egress ..	Last contact.....	T	E. Eq.	,,	A. 1	17. 53. 45	17. 50. 35	17. 51. 1	12. 27. 21		
July 6	I	Tr. Ingress..	First contact	C	E. Eq.	310	A. 1	16. 38. 45	16. 38. 22	16. 38. 32	9. 40. 42	9. 40.	
6	I	Tr. Ingress..	Last contact.....	C	E. Eq.	,,	A. 1	16. 41. 45	16. 41. 22	16. 41. 32	9. 43. 42		

(*a*.) Definition very bad; limb blurred, and sky cloudy.

(*b*.) Very cloudy.

Occultations of Stars by the Moon, 1875.

Day of Observation, 1875.	Name of Object.	Phenomenon.	Moon's Limb.	Observer.	Instrument.	Clock or Chronometer.	Time Noted.	Time by Transit Clock.	Sidereal Time.	Mean Solar Time.
May 12	(*a*) 37 Leonis	Disappearance...	Dark	L	E. Eq.	A. 1	h m s 14. 28. 39·2	h m s 14. 28. 39·2	h m s 14. 28. 45·37	h m s 11. 7. 31·89
Oct. 16	ζ Arietis.....	Disappearance...	Bright	J	Altazimuth	G. 1	23.[1] 0. 29·2	23. 0. 4·0	23. 0. 11·83	9. 20. 16·59
16	(*b*) ζ Arietis .	Reappearance ...	Dark	C	E. Eq.	Sid. S.	23. 54. 33·7	23. 54. 33·7	23. 54. 41·51	10. 14. 37·35
Nov. 21	(*c*) β Virginis	Disappearance...	Bright	L	Altazimuth	G. 1	6. 52. 33·0	6. 51. 26·8	6. 52. 6·13	14. 49. 20·82
21	β Virginis ...	Reappearance ...	Dark	L	Altazimuth	G. 1	7. 57. 53·0	7. 56. 46·9	7. 57. 26·19	15. 54. 30·18

(*a*.) Star's image not good, but disappearance observed well.

(*b*.) Registered on Chronograph.

(*c*.) Observation not very good; light cloud passing over Moon at disappearance.

Disappearance of 37 Leonis, 1875, May 12^d. 11^h. 7^m. 31^s·9 + t^s, Greenwich Mean Solar Time.

	° ′ ″	″	″
Right Ascension of Zenith in arc	217. 11. 20·55	+ 15·0	× t
Moon's Right Ascension in arc	153. 1. 25·65	+ x + 0·5045	× t
Moon's N.P.D.	74. 44. 53·27	+ y + 0·2200	× t
Moon's Horizontal Equatoreal Parallax	56. 25·79	× $\left(1 + \frac{m}{1000}\right)$	
Moon's Semidiameter	15. 24·06	× $\left(1 + \frac{n}{1000}\right)$	
Star's Right Ascension in arc	152. 29. 48·00	+ e''	
Star's N.P.D.	75. 38. 58·20	+ f	
Geocentric R.A. of corresponding point in arc	153. 2. 45·56	+ e + 0″·0638 × t + 1″·9776	× m
Geocentric N.P.D. of corresponding point	75. 0. 10·02	+ f − 0·0337 × t − 2·3282	× m

Geocentric distance of center from corresponding point,

$$15'.19''.99 + 0.0809 \times \{ + e'' \cdot x'' - 0''.4407 \times t + 1''.9776 \times m \}$$
$$+ 0.9966 \times \{ f'' - 0''.0337 \times t - 2''.3282 \times m \}$$
$$- 0.9966 \times \{ y'' + 0''.2200 \times t \}$$

Final Equation.

$$+ 4''.07 = + 0.0809 \times e'' + 0.9966 \times f'' - 0.0809 \times x'' - 0.9966 \times y'' - 0''.2885 \times t - 0''.0720 \times m - 0''.9241 \times n$$

Disappearance of ζ Arietis, 1875, October 16^d. 9^h. 20^m. 16^s·6 + t^s, Greenwich Mean Solar Time.

	° ′ ″	″	″
Right Ascension of Zenith in arc	345. 2. 57·45	+ 15·0	× t
Moon's Right Ascension in arc	46. 10. 17·70	+ x + 0·6241	× t
Moon's N.P.D.	69. 0. 12·55	+ y − 0·2129	× t
Moon's Horizontal Equatoreal Parallax	60. 37·64	× $\left(1 + \frac{m}{1000}\right)$	
Moon's Semidiameter	16. 32·87	× $\left(1 + \frac{n}{1000}\right)$	
Star's Right Ascension in arc	46. 56. 40·20	+ e''	
Star's N.P.D.	69. 24. 51·9	+ f	
Geocentric R.A. of corresponding point in arc	46. 20. 52·12	+ e + 0″·0786 × t − 2″·1481	× m
Geocentric N.P.D. of corresponding point	68. 46. 59·77	+ f + 0·0495 × t − 2·2721	× m

Geocentric distance of center from corresponding point,

$$16'.29''.34 + 0.5581 \times \{ + e'' - x'' - 0''.5455 \times t - 2''.1481 \times m \}$$
$$- 0.8012 \times \{ f'' + 0''.0495 \times t - 2''.2721 \times m \}$$
$$+ 0.8018 \times \{ y'' - 0''.2129 \times t \}$$

Final Equation.

$$+ 3''.53 = + 0.5581 \times e'' - 0.8012 \times f'' - 0.5581 \times x'' + 0.8018 \times y'' - 0''.5148 \times t + 0''.6216 \times m - 0''.9929 \times n$$

Reappearance of ζ Arietis, 1875, October 16^d. 10^h. 14^m. 37^s·4 + t^s, Greenwich Mean Solar Time.

Right Ascension of Zenith in arc	358. 40. 22·65		+ 15·0	× t
Moon's Right Ascension in arc	46. 44. 17·25	+ x	+ 0·6258	× t
Moon's N. P. D.	68. 48. 42·76	+ y	− 0·2120	× t
Moon's Horizontal Equatoreal Parallax	60. 37·55 × $\left(1 + \frac{m}{1000}\right)$			
Moon's Semidiameter	16. 32·85 × $\left(1 + \frac{n}{1000}\right)$			
Star's Right Ascension in arc	46. 56. 40·20	+ e''		
Star's N. P. D.	69. 24. 51·9	+ f		
Geocentric R. A. of corresponding point in arc	46. 26. 23·36	+ e	+ 0·1131 × t	− 1·8168 × m
Geocentric N. P. D. of corresponding point	68. 49. 34·04	+ f	+ 0·0418 × t	− 2·1179 × m

Geocentric distance of center from corresponding point,

$$\begin{aligned} 16'.42''.65 &+ 0.9313 \times \{ -e'' + x'' + 0''.5127 \times t + 1''.8168 \times m \} \\ &+ 0.0520 \times \{ f'' + 0''.0418 \times t - 2''.1179 \times m \} \\ &- 0.0502 \times \{ y'' - 0''.2120 \times t \} \end{aligned}$$

Final Equation.

$$-9''.80 = -0.9313 \times e'' + 0.0520 \times f'' + 0.9313 \times x'' - 0.0502 \times y'' + 0''.4903 \times t + 1''.5819 \times m - 0''.9929 \times n$$

Disappearance of β Virginis, 1875, November 21^d. 14^h. 49^m. 20^s·8 + t^s, Greenwich Mean Solar Time.

Right Ascension of Zenith in arc	103. 1. 31·95		+ 15·0	× t
Moon's Right Ascension in arc	175. 16. 18·75	+ x	+ 0·4637	× t
Moon's N. P. D.	86. 42. 15·92	+ y	+ 0·2501	× t
Moon's Horizontal Equatoreal Parallax	55. 58·66 × $\left(1 + \frac{m}{1000}\right)$			
Moon's Semidiameter	15. 16·65 × $\left(1 + \frac{n}{1000}\right)$			
Star's Right Ascension in arc	176. 3. 15·60	+ e''		
Star's N. P. D.	87. 32. 4·5	+ f		
Geocentric R. A. of corresponding point in arc	175. 29. 47·72	+ e	+ 0·0418 × t	− 2·0079 × m
Geocentric N. P. D. of corresponding point	86. 48. 58·19	+ f	+ 0·0058 × t	− 2·5863 × m

Geocentric distance of center from corresponding point,

$$\begin{aligned} 15'.2''.31 &+ 0.8935 \times \{ +e'' - x'' - 0''.4219 \times t - 2''.0079 \times m \} \\ &+ 0.4459 \times \{ f'' + 0''.0058 \times t - 2''.5863 \times m \} \\ &- 0.4457 \times \{ y'' + 0''.2501 \times t \} \end{aligned}$$

Final Equation.

$$+14''.34 = +0.8935 \times e'' + 0.4459 \times f'' - 0.8935 \times x'' - 0.4457 \times y'' - 0''.4859 \times t - 2''.9472 \times m - 0''.9167 \times n$$

Reappearance of β Virginis, 1875, November 21^d. 15^h. 54^m. 30^s·2 + t, Greenwich Mean Solar Time.

Right Ascension of Zenith in arc	119. 21. 32·85		+	15·0	× t
Moon's Right Ascension in arc	175. 46. 30·45	+ x	+	0·4630	× t
Moon's N. P. D.	86. 58. 33·72	+ y	+	0·2501	× t
Moon's Horizontal Equatoreal Parallax	55. 56·68	× $\left(1 + \frac{m}{1000}\right)$			
Moon's Semidiameter	15. 16·19	× $\left(1 + \frac{n}{1000}\right)$			
Star's Right Ascension in arc	176. 3. 15·60	+ e''			
Star's N. P. D.	87. 32. 4·5	+ f			
Geocentric R. A. of corresponding point in arc	175. 34. 2·12	+ e	+	$0''·0799$	× t − $1''·7535$ × m
Geocentric N. P. D. of corresponding point	86. 49. 22·80	+ f	+	0·0049	× t − 2·5617 × m

Geocentric distance of center from corresponding point,

$$15'.28''.37 + 0·8037 \times \left\{ -e'' + x'' + 0''·3831 \times t + 1''·7535 \times m \right\}$$
$$- 0·5934 \times \left\{ f'' + 0''·0049 \times t - 2''·5617 \times m \right\}$$
$$+ 0·5936 \times \left\{ y'' + 0''·2501 \times t \right\}$$

Final Equation.

$$-12''·18 = -0·8037 \times e'' - 0·5934 \times f'' + 0·8037 \times x'' + 0·5936 \times y'' + 0''·4535 \times t + 2''·9294 \times m - 0''·9162 \times n$$

ROYAL OBSERVATORY, GREENWICH.

SPECTROSCOPIC OBSERVATIONS

MADE AT THE

ROYAL OBSERVATORY, GREENWICH,

IN THE YEARS

1874 and 1875.

POSITION-ANGLES and HEIGHTS of SOLAR PROMINENCES, observed with the SPECTROSCOPE, at the ROYAL OBSERVATORY, in the Years 1874 and 1875.

Date.	No. of Prisms.	Limiting Position-angles.	Height.	REMARKS.
		° ′ ° ′	″	
1874, July 2	4	297. 44·5 — 302. 16·5		
1874, July 30	4	120. 54 — 122. 50	21	
		126. 4 — 127. 29	14	
		310. 28 — 312. 21	28	
		328. 38 — 333. 41	83	Steep on both sides. Rather faint.
1874, Aug. 8	4	272. 35 — 275. 3	35	
		284. 45 — 288. 21	30	
		318. 35 — 321. 46	40	
1874, Aug. 12	4	257. 0 — 259. 53	30	
		260. 35 — 267. 39	40	Seen afterwards on the F line; height, 50″. The entire limb examined on both C and F. Light white cloud interfered with observation.
1874, Aug. 24	20	232. 54 — 237. 58		The limb examined from 180° to the prominence.
1874, Aug. 26	20	° ′ 88. 30		
		131. 30		
		140. 2 — 147. 25		
		291. 30		
1874, Aug. 31	20	131. 30	53	A cloud-like mass, separated from and above the prominence, showed a displacement towards the blue equal to three times the width of the hydrogen line, corresponding to a velocity of approach of 100 to 120 miles a second. Part only of the limb examined.
1874, Sept. 5	20	280. 45 — 283. 10	38	The limb from 180° to 20° (in the positive direction) examined, on the C line.
1874, Sept. 10	20	265. 0 — 266. 15	44	Much white haze around the Sun. Examined the limb from 180° to the prominence.
1874, Sept. 12	20	269. 10 — 275. 55	52	The limb examined from 180° to the prominence. Clouds came over the Sun before more than half the group of prominences could be measured or sketched.
1874, Sept. 22	20	240. 55 — 244. 0	35	The limb from 180° to 244° examined, on the C line.
1874, Sept. 25	20	54. 10 — 57. 15	34	A prominence, rhomboidal in shape, with a very bright beak.
		126. 0 — 132. 13	70	A large prominence, with some very distinct markings.
		135. 10 — 136. 10	31	A small flame-like prominence, possibly detached.
		155. 30 — 158. 42	58	A large prominence, apparently consisting of three jets.
		240. 48 — 242. 7	25	A small detached cloud.
		253. 20 — 254. 40	40	A somewhat larger cloud, also detached.
		344. 0 — 344. 55	24	A very faint small cloud, quite separated from the limb. The entire limb examined. The Sun was never free from white haze.
1874, Oct. 8	20	268. 40 — 273. 54	38	The limb examined from 180° to the prominence.

The Position-angles are measured round the Sun's limb from N, in the direction N, E, S, W.

Date.	No. of Prisms.	Limiting Position-angles.	Height.	REMARKS.
		° ′ ° ′	″	
1874, Nov. 3	20	160. 50 — 167. 28	26	Apparently a long, low, cloud-like prominence. Seen with difficulty.
		246. 48 — 247. 48	30	A bright cloud detached from a thick stem, much less bright.
		315. 10 — 316. 40	37	A rectangular prominence, indistinctly seen.
				The entire limb examined. The day was hazy, the prominences not well-defined.
1875, Feb. 22	20	301. 30 — 303. 30	54	A tall narrow prominence, apparently nearly rectangular in shape.
				The entire limb examined.
1875, Feb. 23	4	237. 30 — 238. 30	72	A tall tongue of flame, apparently triangular in shape.
1875, Mar. 10	3½	19. 22 — 20. 10	20	Seen only on the C line.
		42. 50 — 48. 30	25	Seen only on the C line.
		192. 53 — 197. 50	50	Distinctly seen on the C and F lines, fairly well on D_3, and not at all on *b*.
				The entire limb examined.
1875, Mar. 11	3½	184. 22 — 185. 35 207. 30 — 208. 30 219. 30 — 220. 30 ° ′ 245. 10	12	The limb examined from 180° to 246°. In four places the chromosphere attained a height of 12″, its average height being 6″.
1875, Mar. 18	3½	239. 20 — 239. 40	17	Average height of the chromosphere 8″ to 12″.
				The entire limb examined ; but the day was not clear.
1875, Mar. 27	3½	28. 0 — 31. 36		Seen well on C, and faintly but completely on D_3 and F.
		210. 37 — 214. 25		Seen well on C, D_3, and F.
				The entire limb examined. Chromosphere from 4″ to 8″ in height.
1875, April 8	20	198. 30	Large	The limb examined from 180° to 255°. Two prominences seen, but neither measured nor sketched.
		254. 30	Small	
1875, April 14	20	1. 30 — 16. 0	68	
		28. 30 — 35. 30	24	Long low cloud-like prominence.
		185. 30 — 186. 0	16	Small and faint jet.
		238. 30 — 239. 30	20	Small faint jet.
				The entire limb examined. Day very hazy. Chromosphere 6″ or 7″ in height.
1875, April 17	20	15. 0 — 17. 0	32	Chromosphere about 4″·5 in height.
		195. 30 — 200. 30	53	Chromosphere about 5″ in height.
		258. 30 — 260. 30	32	
		263. 30 — 266. 30		A completely detached cloud, 50″ from the limb, and from 40″ to 50″ in height.
		268. 0 — 270. 30	70	
				The entire limb examined.
1875, April 19	20	47. 30	20	
		53. 30	13	
		92. 30 — 95. 30	28	
		107. 30 — 117. 30	52	
		192. 30 — 198. 30	43	
		226. 30	15	
		229. 30	21	
		296. 30 — 298. 30	42	
				The entire limb examined.
1875, April 20	20	79. 30 — 80. 30	36	
		84. 30 — 87. 0	38	
		101. 30 — 108. 30	64	

The Position-angles are measured round the Sun's limb from N, in the direction N, E, S, W.

Date.	No. of Prisms.	Limiting Position-angles.	Height.	REMARKS.
		° ′ ° ′	″	
1875, April 20 —*continued.*	20	221. 30 — 224. 30	32	
		290. 30 — 293. 30	72	The entire limb examined.
1875, April 23	20	209. 0 — 211. 30	32	
		233. 30	25	
		244. 30 — 249. 30	55	
		275. 30	15	
		277. 30	35	
		293. 30 — 294. 30	30	The limb examined from 180° to 360°.
1875, April 24	20	208. 30 — 214. 30	28	Great detail, very irregular in form.
		243. 30 — 247. 30	65	The limb examined from 180° to 360°.
1875, April 30	3½	52. 30 — 53. 0	60	A narrow jet.
		58. 45 — 59. 15	70	A narrow jet.
		126. 30 — 127. 0	30	Small triangular flame.
				The entire limb examined.
1875, May 3	3½			Part of the limb examined. No prominence visible.
1875, May 10	3½	197. 0 — 198. 0	40	
		262. 30 — 263. 30	32	The limb from 180° to 270° examined.
1875, May 11	3½	13. 0 — 14. 0	20	} Examined on the C line only.
		38. 30 — 39. 0	16	
		56. 30 — 57. 0	16	
		68. 10 — 70. 0	40	Seen on C and D_3.
		195. 50 — 197. 50	40	Seen on C and D_3.
		257. 0 — 258. 30	24	Seen on C, D_3, and F. On F the prominence had a height of 16″, and was triangular in shape, being broader at the base than it appeared on C, on which line it showed as a narrow jet.
		271. 50 — 272. 50	50	Seen in C and D_3.
		278. 40 — 279. 48	130	Seen in C and D_3.
				The entire limb examined. No difference in shape between the prominences as seen on C and on D_3; but on the latter line they were very faint.
1875, May 12	3½	18. 30	22	
		43. 30 — 45. 30	14	
		57. 10 — 58. 10	30	
		112. 50	20	
		195. 50 — 196. 30	14	
		197. 30 — 199. 40	20	
		236. 0	16	
		274. 40 — 277. 10	56	
		282. 50 — 284. 30	60	The entire limb examined.
1875, May 15	3½	52. 0 — 52. 40	20	
		55. 55 — 56. 50	28	
		59. 50 — 60. 10	32	
		274. 10 — 274. 50	18	
		290. 0 — 291. 40	40	The entire limb examined on the C line.

The Position-angles are measured round the Sun's limb from N, in the direction N, E, S, W.

Date.	No. of Prisms.	Limiting Position-angles.	Height.	REMARKS.
		° ′ ° ′	″	
1875, May 17	3½	57. 10 — 58. 50	30	
		116. 40 — 118. 30	40	
		231. 0 — 234. 10	34	
				The entire limb examined on the C line.
1875, May 19	3½	125. 20 — 126. 20	36	
		201. 0 — 201. 40	30	
		220. 13 — 226. 30	68	
		285. 20 — 287. 30	30	
				The entire limb examined.
1875, May 24	20	31. 10 — 32. 0	20	
		57. 5 — 57. 30	20	
		127. 20 — 132. 0	64	
				The shape of this prominence had evidently changed in the course of a quarter of an hour.
		279. 10 — 281. 0	40	
		305. 0 — 307. 0	40	
		309. 15 — 312. 0	44	
				The entire limb examined.
1875, June 17	8	208. 0 — 208. 40	24	The limb examined from 180° to the prominence.
1875, June 19	3½	20. 0 — 20. 30	20	
		47. 10 — 48. 30	32	
		54. 50 — 60. 50	46	
		211. 0 — 212. 30	110	
				A cloud 40″ distant from the limb and 70″ in height. The entire limb examined.
1875, June 25	3½	238. 30 — 239. 0	14	
		247. 30 — 249. 50	46	
		273. 50 — 274. 20	14	
		307. 30 — 309. 30	24	
		323. 50 — 329. 30	40	
				The limb examined from 180° to 360°.
1875, July 5	3½	17. 30 — 17. 50	24	
		116. 30 — 118. 30	100	
				Detached cloud 40″ distant from the limb and 60″ in height. The entire limb examined.
1875, July 6	3½	38. 30 — 41. 30	34	
		78. 0 — 79. 0	26	
		282. 30 — 284. 30	30	
		° ′		
		298. 30	38	
		311. 30 — 312. 30	26	
		321. 15 — 322. 10	44	
				Detached cloud 14″ distant from the limb and 30″ in height. The entire limb examined with 3½ prisms, and part of it with 8 prisms.
1875, July 10	3½	62. 30 — 68. 30	120	This prominence was photographed on one of the photographs of the Sun taken on this day with the Photoheliograph. The limb examined from 0° to 90°.
1875, July 26	3½	122. 40 —	27	
		128. 20 — 131. 40	30	
		134. 20 — 134. 50	35	
		152. 0 — 154. 0	43	
		285. 20 — 287. 0	20	
		289. 40 — 292. 40	23	
		292. 10 — 296. 10	24	
		313. 50 — 314. 0	17	
		329. 0 — 331. 40	70	
				The entire limb examined.

The Position-angles are measured round the Sun's limb from N, in the direction N, E, S, W.

Date.	No. of Prisms.	Limiting Position-angles.	Height.	REMARKS.
		° ′ ° ′	″	
1875, July 28	3½	46. 10 — 48. 0	28	
		125. 40 — 127. 10	22	
		147. 15 — 148. 0	18	
		149. 50 — 155. 40	100	Height as seen on $D_3 = 100''$, on $F = 70''$.
		253. 40 — 254. 40	18	
		257. 20 — 257. 30	18	
		287. 0 — 293. 0	50	Height as seen on $D_3 = 50''$, on $F = 45''$.
		298. 40 — 299. 40	17	The entire limb examined.
1875, July 29	3½	151. 40 — 157. 40	95	Seen on both C and D_3.
		289. 40 — 293. 10	30	Seen only on C.
				The entire limb examined.
1875, July 31	3½	46. 20 — 49. 20	38	
		80. 10 — 84. 40	45	
		90. 0 — 92. 20	36	
		155. 10 — 162. 0	42	
		225. 40 — 226. 10	20	
		285. 10 — 286. 20	40	The entire limb examined. Day cloudy, with white haze.
1875, Aug. 2	3½	46. 10 — 50. 0	50	
		81. 10 — 88. 10	45	
		106. 10 — 108. 10	23	
		155. 40 — 158. 10	22	
				The entire limb examined. Day cloudy, with white haze.
1875, Aug. 3	3½			The limb examined from 180° to 90°. Three prominences seen, two in similar positions to the first two observed on August 2, and of similar heights. The third was at about 70° of the position circle, and 23″ in height. The unfavourable weather prevented exact measurements.
1875, Aug. 5	3½	228. 50 — 229. 30	20	
		261. 40 — 269. 10	50	
				The limb was examined from 180° to 270°.
1875, Aug. 10	3½	51. 40 — 53. 10	22	
		99. 0 — 99. 40	18	
		117. 10 — 118. 10	25	
		143. 20 — 144. 50	40	Very faint.
		145. 20 — 146. 30	22	Very faint.
		231. 0 — 232. 20	27	
		261. 30 — 262. 20	30	A small bright detached cloud, about 10″ in height, and 10″ distant from the chromosphere, which was also about 10″ in height.
		289. 30 — 291. 0	40	Very faint.
				The entire limb examined.
1875, Sept. 6	10	60. 0		Much higher and brighter than the two other prominences, and about 4° or 5° in breadth. The Sun was lost in cloud, before it could be measured.
		243. 40 — 245. 0	22	
		331. 20 — 332. 0	16	
				The entire limb examined, and the chromosphere seen all the way round, but only indistinctly.
1875, Sept. 7	3½	59. 20 — 64. 10	65	
		92. 30 — 93. 30	20	
		155. 30 — 158. 50	50	
		243. 30 — 245. 10	25	
				The entire limb examined.

The Position-angles are measured round the Sun's limb from N, in the direction N, E, S, W.

Date.	No. of Prisms.	Limiting Position-angles.	Height.	REMARKS.
		° ′ ° ′	″	
1875, Sept. 9	20	235. 40 — 237. 15	22	The limb examined from 180° to the prominence.
1875, Dec. 17	10	110. 10 — 111. 50	30	
		229. 50 — 230. 50	30	Faint. The prominence consists of two or three fine filaments shooting from slightly raised chromosphere. Chromosphere 10″ in height.
		244. 40 — 246. 10	30	Brighter than the last prominence. Shaped like a cumulus-cloud.
				The entire limb was examined on D_2, b, and F, as well as on C, but as the Sun was not so bright as when it was examined on C, no traces of prominences were seen, although the chromosphere was visible on all the lines.

The Position-angles are measured round the Sun's limb from N, in the direction N, E, S, W.

The observations for which the number of prisms is given as 20, were made with a large spectroscope, having a train of 20 simple prisms, the property of Mr. Spottiswoode, and lent by him to the Royal Observatory.

MEASURES of DISPLACEMENT of LINES in the SPECTRA of STARS, as compared with those of ROYAL OBSERVATORY, GREENWICH,

Date.	Observer.	Number of Prisms.	Position Circle.	Objects compared.	Micrometer Readings.	Displacement. Measured.	Displacement. Estimated in Terms of the Width of the Comparison Line.
d h m			°		r	d	
1875, June 25. 12. 27	M	2	0	α Ophiuchi	0·886		
				H β	0·748	− 0·138	¼ to blue
1875, June 25. 13. 12	,,	,,	0	α Ophiuchi	0·062		
				H β	0·033	− 0·029	
1875, June 25. 13. 27	M	2	0	Vega	0·350		
				H β	0·215	− 0·135	⅓ to blue
1875, June 25. 13. 42	,,	,,	0	Vega	0·235		
				H β	0·015	− 0·220	
1875, June 26. 12. 28	WC	2	0	Vega	0·212		
				H β	0·116	− 0·096	¼ to blue
1875, June 26.	,,	,,	0	Vega	0·740		
				H β	0·710	− 0·030	¼ to blue
1875, June 26.	WC	2	0	Altair.....	0·512		
				H β	0·036	− 0·476	⅔ to blue
1875, June 26.	,,	,,	0	Altair.....	0·811		
				H β	0·504	− 0·307	⅓ to blue
1875, July 8. 12. 6	M	2	0	Vega	0·513		
				H β	0·395	− 0·118	¼ to blue
1875, July 8. 12. 13	,,	,,	0	Vega	0·490		
				H β	0·410	− 0·080	
1875. July 8. 12. 23	,,	,,	0	Vega	0·508		
				H β	0·288	− 0·220	⅓ to blue
1875, July 8. 12. 56	M	2	0	Altair	0·321		
				H β	0·120	− 0·201	⅓ to blue
1875, July 8.	,,	,,	0	Altair	0·380		
				H β	0·135	− 0·245	⅓ to blue
1875, July 12. 11. 0	M	2	0	η Ursæ Majoris.....	0·928		
				H β	0·805	− 0·123	¼ to blue
1875, July 12. 12. 40	M	1½	0	α Ophiuchi	0·865		
				H β	1·035	+ 0·170	½ to red
1875, July 12. 13. 0	,,	,,	0	α Ophiuchi	0·650		
				H β	1·059	+ 0·409	1 to red
1875, July 12. 13. 20	M	1½	0	Vega	0·772		
				H β	0·680	− 0·092	¾ to blue
1875, July 12.	,,	,,	0	Vega	0·870		
				H β	0·798	− 0·072	½ to blue
1875, July 12.	M	1½	0	Altair	0·465		
				H β	0·658	+ 0·193	⅔ to red
1875, July 12.	,,	,,	0	Altair	0·435		
				H β	0·612	+ 0·177	

The velocity of light has been taken as 185,000 miles a second, and the distance of the Sun as 91,260,000 miles.

TERRESTRIAL ELEMENTS, and CONCLUDED MOTIONS in the LINE of SIGHT, from OBSERVATIONS at the in the Year 1875.

Width of Slit.	Earth's Motion in Miles per Second.	Concluded Motion of Star in Miles per Second.		REMARKS.
		Measured.	Estimated.	
2·7	+ 3·3	− 26·6	− 25·1	Indirect comparison. Star spectrum faint. Apparently the two lines are nearly coincident.
2·3	− 1·4	− 47·7	− 24·8	Direct comparison.
3·2 1·8	− 1·3	− 16·2	− 19·4	Everything in good adjustment.
2·5 3·1	− 6·7	(− 102·1)	(− 26·0)	Everything in good adjustment.
1·4 1·4 1·4	+ 0·4	− 39·0	− 13·6	Direct comparison.
2·5 2·5	− 3·7	− 58·2	− 23·9	Direct comparison. Star-line not very well seen. Indirect comparison.
2·3	+ 9·4	− 43·5	− 23·5	Star-line very faint, and the measure uncertain, the faintness of the star-line making it almost impossible to see both lines at once.
2·1 1·5	+ 7·1	(+ 154·3)	(+ 88·5)	Indirect comparison. Star line faint, and not seen very well. Indirect comparison.
0·5 1·6	+ 0·9	− 46·5	− 65·5	Direct comparison. Direct comparison. Star-line seen much better than at the first observation. Definition good.
1·6 2·7		(+ 105·6)	(+ 85·4)	Very difficult to compare the two lines directly. The star-line faint, broad, and ill-defined at its edges.

+ denotes recession ; − denotes approach.

Date.	Observer.	Number of Prisms.	Position Circle.	Objects compared.	Micrometer Readings.	Displacement.	
						Measured.	Estimated in Terms of the Width of the Comparison Line.
d h m			°		r	d	
1875, July 29. 11. 8	M	1½	0	Vega	0·296		
				H β	0·255	− 0·041	⅙ to blue
1875, July 29. 11. 28	,,	,,	0	Vega	0·522		
				H β	0·438	− 0·084	⅛ to blue
1875, July 29. 11. 53	M	1½	0	Altair.....	0·526		
				H β	0·369	− 0·157	⅜ to blue
1875, July 29. 12. 3	,,	,,	0	Altair.....	0·597		
				H β	0·468	− 0·129	½ to blue
1875, July 29. 12. 18	M	1½	0	α Cygni.....	0·327		
				H β	0·440	+ 0·113	½ to red
1875, July 29. 12. 28	,,	,,	0	α Cygni.....	0·397		
				H β	0·479	+ 0·082	½ to red
1875, July 29. 12. 58	M	1½	0	α Pegasi	0·564		
				H β	0·525	− 0·039	⅐ to blue
1875, July 29. 13. 13	,,	,,	0	α Pegasi	0·785		
				H β	0·743	− 0·042	⅐ to blue
1875, July 29. 13. 39	M	1½	0	α Andromedæ	0·468		
				H β	0·427	− 0·041	⅙ to blue
1875, July 29. 14. 3	,,	,,	0	α Andromedæ	0·465		
				H β	0·400	− 0·065	⅙ to blue
1875, July 31. 11. 0	M	1½	0	Vega	0·494		
				H β	0·420	− 0·074	⅓ to blue
1875, July 31. 11. 3	,,	,,	0	Vega	0·392		
				H β	0·283	− 0·109	⅓ to blue
1875, July 31. 11. 15	M	2½	0	Vega	0·252		
				H β	0·101	− 0·151	¼ to blue
1875, July 31. 11. 20	,,	,,	0	Vega	0·951		
				H β	0·798	− 0·153	¼ to blue
1875, July 31. 11. 40	M	2½	0	Altair.....	0·893		
				H β	0·942	+ 0·049	⅕ to red
1875, July 31. 12. 0	M	1½	0	Altair.....	0·718		
				H β	0·662	− 0·056	
1875, July 31. 12. 3	,,	,,	0	Altair.....	0·379		
				H β	0·362	− 0·017	
1875, July 31.	M	½	0	Altair.....			
				H β			
1875, July 31. 12. 13	M	1½	0	α Cygni	0·754		
				H β	0·600	− 0·154	½ to blue
1875, July 31. 12. 17	,,	,,	0	α Cygni	1·034		
				H β	0·923	− 0·111	⅓ to blue

The velocity of light has been taken as 185,000 miles a second, and the distance of the Sun as 91,260,000 miles.

Width of Slit.	Earth's Motion in Miles per Second.	Concluded Motion of Star in Miles per Second.		REMARKS.
		Measured.	Estimated.	
d				
2·1				Direct comparison.
2·3	+ 3·2	− 37·7	− 39·2	Indirect comparison.
1·5				Indirect comparison.
2·7	+ 1·7	− 81·3	− 77·9	Indirect comparison. Star line very faint.
2·8				Indirect comparison.
2·2	− 4·1	(+ 58·1)	(+ 80·5)	Indirect comparison. Star-line somewhat faint.
3·1				Indirect comparison. Star-line broad and dark. Lines very nearly coincident.
3·6	−12·0	− 10·3	− 13·7	Indirect comparison.
2·6				Star spectrum faint. Sky beginning to cloud over and mist rising. Lines nearly coincident.
2·6	−14·8	− 14·7	− 11·2	Indirect comparison.
2·8				Direct comparison. Star spectrum very bright indeed.
2·8	+ 3·5	− 54·1	− 57·6	Direct comparison.
5·1				Indirect comparison.
4·5	+ 3·5	− 53·1	− 35·8	Indirect comparison.
4·1	+ 2·2	+ 13·8	+ 21·2	Indirect comparison.
				Direct comparison showed the two lines to be nearly coincident.
	+ 2·2	(− 22·2)		
	+ 2·2			The two spectra were compared directly, and with great care, but no displacement was detected.
3·6				Indirect comparison.
4·6	− 3·8	− 69·7	− 79·7	Indirect comparison.

+ denotes recession; − denotes approach.

Date.	Observer.	Number of Prisms.	Position Circle.	Objects compared.	Micrometer Readings.	Displacement.	
						Measured.	Estimated in Terms of the Width of the Comparison Line.
d h m			°		r	d	
1875, Aug. 2. 11. 25	M	1½	0	α Cygni H β	0·197 0·119	— 0·078	¼ to blue
1875, Aug. 2. 11. 35	,,	,,	0	α Cygni H β	0·151 0·025	— 0·126	½ to blue
1875, Aug. 4. 10. 54	M	1½	0	Altair H β	0·950 0·784	— 0·166	⅓ to blue
1875, Aug. 4. 11. 2	,,	,,	0	Altair H β	0·528 0·393	— 0·135	⅓ to blue
1875, Aug. 4. 11. 24	M	1½	0	α Pegasi H β	0·641 0·586	— 0·055	⅙ to blue
1875, Aug. 4. 11. 34	,,	,,	0	α Pegasi H β	0·494 0·436	— 0·058	⅙ to blue
1875, Aug. 4. 12. 29	M	1½	0	α Andromedæ H β	0·175 0·146	— 0·029	⅙ to blue
1875, Aug. 4. 12. 44	,,	,,	0	α Andromedæ H β	0·280 0·235	— 0·045	⅙ to blue
1875, Aug. 30. 8. 57	M	2½	0	Vega H β	0·462 0·271	— 0·191	½ to blue
1875, Aug. 30. 9. 9	,,	,,	0	Vega H β	0·750 0·612	— 0·138	¼ to blue
1875, Aug. 30. 9. 14	,,	,,	0	Vega H β	0·505 0·446	— 0·059	¼ to blue
1875, Aug. 30. 9. 41	M	2½	0	Altair H β	1·004 0·880	— 0·124	½ to blue
1875, Aug. 30. 9. 45	,,	,,	0	Altair H β	0·516 0·322	— 0·194	⅗ to blue
1875, Aug. 30. 10. 8	M	2½	0	α Cygni H β	0·226 0·164	— 0·062	*
1875, Aug. 30. 10. 14	,,	1½	0	α Cygni H β	0·956 0·900	— 0·056	¼ to blue
1875, Aug. 30. 10. 32	M	1½		α Andromedæ H β	0·510 0·434	— 0·076	¼ to blue
1875, Aug. 30. 10. 39	,,	,,		α Andromedæ H β	0·552 0·492	— 0·060	⅓ to blue
1875, Aug. 30. 10. 50	M	1½		α Pegasi H β	0·552 0·398	— 0·154	⅓ to blue
1875, Aug. 30. 11. 0	,,	,,		α Pegasi H β	0·766 0·666	— 0·100	⅛ to blue
1875, Sept. 3. 9. 38	M	3½		Vega H β	0·692 0·594	— 0·098	⅓ to blue
1875, Sept. 3. 10. 0	,,	,,		Vega H β	0·407 0·322	— 0·085	¼ to blue

The velocity of light has been taken as 185,000 miles a second, and the distance of the Sun as 91,260,000 miles.

Width of Slit.	Earth's Motion in Miles per Second.	Concluded Motion of Star in Miles per Second.		REMARKS.
		Measured.	Estimated.	
d				
2·3				Indirect comparison.
				Indirect comparison.
1·9	− 3·6	− 53·2	− 47·6	
4·1				Indirect comparison. A direct comparison gave the same result.
				Indirect comparison.
2·4	+ 3·3	− 86·8	− 62·1	
2·5				Indirect comparison.
				Indirect comparison.
2·5	−10·7	− 20·5	− 14·8	
2·9				Indirect comparison.
				Indirect comparison. Apparently very nearly coincident.
2·9	−14·1	− 6·5	− 17·2	
2·0				Indirect comparison.
				Sky very hazy. The star-line only seen occasionally.
2·4				
				The star-line much better seen than at the two former observations.
2·4	+ 6·9	− 49·0	− 34·1	
2·5				
				Indirect comparison.
2·5	+ 9·5	− 61·4	− 57·5	
2·1		(− 20·7)		*The star-line very nearly coincident with the comparison line; no sensible displacement.
				Indirect comparison.
2·1	+ 0·5	− 31·7	− 35·5	
2·6				Indirect comparison. Sky cloudy; image faint and tremulous.
				Indirect comparison. Spectrum a little brighter than at the first observation.
2·6	− 9·5	− 28·3	− 36·0	
2·7				Indirect comparison.
				Indirect comparison.
3·1	− 4·3	− 66·3	− 39·5	
2·0				Indirect comparison.
				Indirect comparison. Star-line broad, ill-defined, and not very distinctly seen.
2·0	+ 7·2	− 28·9	− 23·9	

+ denotes recession; − denotes approach.

Date.	Observer.	Number of Prisms.	Position Circle.	Objects compared.	Micrometer Readings.	Displacement.	
						Measured.	Estimated in Terms of the Width of the Comparison Line.
d h m			°		r	d	
1875, Nov. 29.	M	1½		α Cygni			
				H β			$\frac{1}{10}$ to blue
1875, Nov. 29.	,,	,,		α Cygni	0·863		
				H β	0·815	− 0·048	$\frac{1}{8}$ to blue
1875, Nov. 29.	M	1½		Aldebaran	0·072		
				b_1	0·325	+ 0·253	$\frac{2}{3}$ to red
1875, Nov. 29.	,,	,,		Aldebaran	0·573		
				b_1	0·739	+ 0·166	$\frac{1}{2}$ to red
1875, Nov. 29.	M	1½		Capella	0·223		
				H β	0·321	+ 0·098	$\frac{1}{3}$ to red
1875, Nov. 29.	,,	,,		Capella	0·403		
				H β	0·465	+ 0·062	$\frac{1}{3}$ to red
1875, Nov. 29.	M	1½		β Aurigæ	0·543		
				H β	0·354	− 0·189	$\frac{1}{2}$ to blue
1875, Nov. 29.	,,	,,		β Aurigæ	0·649		
				H β	0·354	− 0·295	$\frac{2}{3}$ to blue
1875, Dec. 17. 8. 17	M	2½		α Andromedæ	0·889		
				H β	0·816	− 0·073	$\frac{1}{3}$ to blue
1875, Dec. 17. 8. 32	,,	,,		α Andromedæ	0·517		
				H β	0·450	− 0·067	$\frac{1}{5}$ to blue
1875, Dec. 17.	M	2½		Aldebaran	0·890		
				b_1	0·994	+ 0·104	$\frac{1}{4}$ to red
1875, Dec. 17.	M	2½		Castor	0·673		
				H β	0·792	+ 0·119	$\frac{1}{5}$ to red
1875, Dec. 17.	,,	,,		Castor	0·462		
				H β	0·643	+ 0·181	$\frac{1}{4}$ to red
1875, Dec. 17.	M	2½		Procyon	0·691		
				H β	0·778	+ 0·087	$\frac{1}{5}$ to red
1875, Dec. 17.	,,	,,		Procyon	0·682		
				H β	0·753	+ 0·071	$\frac{1}{5}$ to red
1875, Dec. 22.	M	2½		Altair			
				H β			Considerably to blue
1875, Dec. 22. 7. 40	M	2½		α Andromedæ	0·170		
				H β	0·000	− 0·170	$\frac{2}{3}$ to blue
1875, Dec. 22. 7. 57	,,	,,		α Andromedæ	0·625		
				H β	0·460	− 0·165	$\frac{2}{3}$ to blue
1875, Dec. 22. 10. 4	M	2½		Capella	0·368		
				H β	0·394	+ 0·026	$\frac{1}{6}$ to red
1875, Dec. 22. 10. 17	,,	,,		Capella	0·701		
				H β	0·758	+ 0·057	to red
1875, Dec. 22. 10. 26	,,	,,		Capella	0·998		
				H β	1·043	+ 0·045	$\frac{1}{4}$ to red

The velocity of light has been taken as 185,000 miles a second, and the distance of the Sun as 91,260,000 miles.

Width of Slit.	Earth's Motion in Miles per Second.	Concluded Motion of Star in Miles per Second.		Weight.	REMARKS.
		Measured.	Estimated.		
d					
4·4				3	Indirect comparison. The two lines almost coincident.
4·5	+ 9·4	− 36·1	− 33·6	3	Star-line not seen so well as at the first observation.
2·7				½	The measures and comparisons are very doubtful, the lines in the star spectrum being very faint, and several being close together, so that the liability to mistake is very great.
2·7	− 0·3	(+ 135·0)	(+ 80·8)	½	
3·0				1	Spectrum bright, but star-line very difficult to see, the image of the star being tremulous and its spectrum varying very much in brightness. Wind rising.
2·1	− 3·8	+ 48·3	+ 55·2	1	
1·3				1	Spectrum fainter than that of Capella, but the line more distinct. It was, however, broad and ill-defined, and therefore difficult to bisect with accuracy. Bright line micrometer used this evening for the first time.
1·3	− 6·4	(− 128·2)	(− 60·5)	1	
3·1				5	Spectrum somewhat faint, but the star-line seen better than on any previous occasion.
4·2	+16·3	− 39·2	− 44·9	4	The estimation is very rough, the comparison line being very narrow.
6·7	+ 5·7	+ 35·1	+ 48·7	½	Star-line exceedingly difficult to see, and confused with others near.
5·5				1	Indirect comparison. Star-line scarcely visible.
5·5	− 7·3	+ 61·3	+ 41·1	3	Indirect comparison. Star-line seen fairly well.
5·0				2	The two lines seemed nearly coincident.
5·0	− 8·6	+ 34·3	+ 35·1	2	The spectrum not so bright as on some occasions, but much steadier, and the definition better than on November 29.
	+ 8·1				No measures could be secured, but for a moment the line was fairly seen, and a considerable displacement towards the blue noticed.
2·9				3	Direct comparison. Wind very high, and images unsteady.
2·9	+16·7	− 71·3	− 79·6	3	Indirect comparison.
2·5				4	Indirect comparison. Very difficult to give an accurate fraction in the estimation, the displacement being very small.
2·5				5	Direct comparison. The best comparison yet made of the star. Displacement very small.
2·5	+ 3·2	+ 11·0	+ 19·1	4	

+ denotes recession ; − denotes approach.

Date.	Observer.	Number of Prisms.	Position Circle.	Objects compared.	Micrometer Readings.	Displacement.	
						Measured.	Estimated in Terms of the Width of the Comparison Line.
d h m			°		r	r	
1875, Dec. 22. 10. 45	W	2½		Rigel	0·782	+ 0·064	½ to red
				H β	0·846		
1875, Dec. 22. 11. 2	,,	,,		Rigel	0·936	+ 0·104	½ to red
				H β	1·040		
1875, Dec. 22. 11. 32	W	2½		Sirius	1·052	+ 0·078	¼ to red
				H β	1·130		
1875, Dec. 22. 11. 54	,,	,,		Sirius	0·613	+ 0·095	¼ to red
				H β	0·708		

The velocity of light has been taken as 185,000 miles a second, and the distance of the Sun as 91,160,000 miles.

Width of Slit.	Earth's Motion in Miles per Second.	Concluded Motion of Star in Miles per Second.		Weight.	REMARKS.
		Measured.	Estimated.		
d					
3·4				2	Indirect comparis on. Both star and comparison lines very faint.
3·7	+ 4·4	+ 25·2	+ 26·7	4	Direct comparison. Both lines seen better than before. Wind high.
3·3				5	Direct comparison. A small but distinct displacement to red. Wind high.
3·8	− 2·9	+ 31·1	+ 29·6	5	Direct comparison.

+ denotes recession; − denotes approach.

COLLECTED RESULTS for MOTIONS of STARS in the line of Sight, from SPECTROSCOPIC OBSERVATIONS made at the ROYAL OBSERVATORY, GREENWICH, in the Year 1875.

(+ denotes Recession; — Approach.)

Date.	Observer.	Number of Measures.	Weight.	Number of Prisms.	Position Circle.	Width of Slit.	Line.	Earth's Motion in Miles per Second.	Concluded Motion of Star in Miles per Second.	
									Measured.	Estimated.
α ANDROMEDÆ.										
					°	d				
1875, July 29	M	2	2	1½	°	2·6	F	— 14·8	— 14·7	— 11·2
August 4	M	2	2	1½	°	2·9	F	— 14·1	— 6·5	— 17·2
30	M	2	2	1½	°	2·6	F	— 9·5	— 28·3	— 36·0
December 17	M	2	4	2½	..	3·1 & 4·2	F	+ 16·3	— 39·2	— 44·9
22	M	2	2	2½	..	2·9	F	+ 16·7	— 71·3	— 79·6
α TAURI (*Aldebaran*).										
1875, November 29	M	2	°	1½	..	2·7	b_1	— 0·3	(+ 135·0)	(+ 80·8)
December 17	M	1	½	2½	..	6·7	b_1	+ 5·7	+ 35·1	+ 48·7
α AURIGÆ (*Capella*).										
1875, November 29	M	2	2	1½	..	3·0 & 2·1	F	— 3·8	+ 48·3	+ 55·2
December 22	M	3	13	2½	..	2·5	F	+ 3·2	+ 11·0	+ 19·1
β ORIONIS (*Rigel*).										
1875, December 22	M	2	5	2½	..	3·4 & 3·7	F	+ 4·4	+ 25·2	+ 26·7
β AURIGÆ.										
1875, November 29	M	2	°	1½	..	1·3	F	— 6·4	(— 128·2)	(— 60·5)
α CANIS MAJORIS (*Sirius*).										
1875, December 22	M	2	10	2½	..	3·3 & 3·8	F	— 2·9	+ 31·1	+ 29·6
α GEMINORUM (*Castor*).										
1875, December 17	M	2	4	2½	..	5·5	F	— 7·3	+ 61·3	+ 41·1

Date.	Observer.	Number of Measures.	Weight.	Number of Prisms.	Position Circle.	Width of Slit.	Line.	Earth's Motion in Miles per Second.	Concluded Motion of Star in Miles per Second.	
									Measured.	Estimated.
α Canis Minoris (*Procyon*).										
1875, December 17	M	2	4	2½	° ..	d 5·0	F	− 8·6	+ 34·3	+ 35·1
α Leonis (*Regulus*).										
1875, May 31	M	1	0	2	20	..	F	+ 17·4	(+ 43·8)	..
η Ursæ Majoris.										
1875, July 12	M	1	1	2	0	2·3	F	+ 9·4	− 43·5	− 23·5
α Ophiuchi.										
1875, June 25	M	2	2	2	0	2·7	F	+ 3·3	− 26·6	− 25·1
July 12	M	2	0	1½	0	2·1 & 1·5	F	+ 7·1	(+ 154·3)	(+ 88·5)
α Lyræ (*Vega*).										
1875, June 25	M	2	8	2	0	2·3	F	− 1·4	− 47·7	− 24·8
26	WC	2	8	2	0	3·2 & 1·8	F	− 1·3	− 16·2	− 19·4
July 8	M	3	8	2	0	1·4	F	+ 0·4	− 39·0	− 13·6
12	M	2	8	1½	0	0·5 & 1·6	F	+ 0·9	− 46·5	− 65·5
29	M	2	8	1½	0	2·1 & 2·3	F	+ 3·2	− 37·7	− 39·2
31	M	2	8	1½	0	2·8	F	+ 3·5	− 54·1	− 57·6
31	M	2	8	2½	0	5·1 & 4·5	F	+ 3·5	− 53·1	− 35·8
August 30	M	3	8	2½	0	2·0 & 2·4	F	+ 6·9	− 49·0	− 34·1
September 3	M	2	8	3½	0	2·0	F	+ 7·2	− 28·9	− 23·9
α Aquilæ (*Altair*).										
1875, June 26	WC	2	0	2	0	2·5 & 3·1	F	− 6·7	(− 102·1)	(− 26·0)
July 8	M	2	..	2	0	2·5	F	− 3·7	− 58·2	− 23·9
12	M	2	..	1½	0	1·6	F	— 2·7	(+ 105·6)	(+ 85·4)
29	M	2	..	1½	0	1·5 & 2·7	F	+ 1·7	− 81·3	− 77·9
31	M	1	..	2½	0	4·1	F	+ 2·2	+ 13·8	+ 21·2
31	M	2	0	1½	0	..	F	+ 2·2	(− 22·2)	..
31	M	1	..	½	0	..	F	+ 2·2	..	..
August 4	M	2	..	1½	0	4·1 & 2·4	F	+ 3·3	− 86·8	− 62·1
30	M	2	..	2½	0	2·5	F	+ 9·5	− 61·4	− 57·5
December 22	M	1	0	2½	..	..	F	+ 8·1	−	−

Collected Results for Motions of Stars in the Line of Sight, and Measures of Dark Lines in Stellar Spectra and in Spectrum of Mars,

Date.	Observer.	Number of Measures.	Weight.	Number of Prisms.	Position Circle.	Width of Slit.	Line.	Earth's Motion in Miles per Second.	Concluded Motion of Star in Miles per Second.	
									Measured.	Estimated.
α Cygni.										
1875, July 29	M	2	0	1½	° 0	d 2·8 & 2·2	F	− 4·1	(+ 58·1)	(+ 80·5)
31	M	2	6	1½	0	3·6 & 4·6	F	− 3·8	− 69·7	− 79·7
August 2	M	2	6	1½	0	2·3 & 1·9	F	− 3·6	− 53·2	− 47·6
30	M	1	0	2½	0	2·1	F	+ 0·5	(− 20·7)	..
30	M	1	3	1½	0	2·1	F	+ 0·5	− 31·7	− 35·5
November 29	M	2	6	1½	..	4·4 & 4·5	F	+ 9·4	− 36·1	− 33·6
α Pegasi (*Markab*).										
1875, July 29	M	2	4	1½	0	3·1 & 3·6	F	− 12·0	− 10·3	− 13·7
August 4	M	2	4	1½	0	2·5	F	− 10·7	− 20·5	− 14·8
30	M	2	4	1½	0	2·7 & 3·1	F	− 4·3	− 66·3	− 39·5

All observations prior to 1875, May 31, have been rejected on account of the systematic errors to which they were liable from the method of comparison adopted. A few observations ending 1875, June 25, 10h., are rejected for other reasons. The weights given are on a scale 1 to 5 for each measure. Results are inclosed in brackets, with a weight 0, in cases where no estimation of the displacement was made, or where the measured and estimated motions differed by more than 50 miles per second. The results for Altair are unreliable, the observations being uncertain, on account of the breadth of the F line in the spectrum of this star.

DARK LINES IN STELLAR SPECTRA.

SMALL STAR SPECTROSCOPE.

The Wave-lengths are inferred from Measurements of the principal Fraunhofer Lines, made on 1875, April 7, combined with Measures of the Bright Lines of certain Elements given below.

α TAURI (*Aldebaran*).

1874, November 24.

Observer, M.

Micrometer.	Intensity.	Wave-length.	Corresponding Element.
r		Tenth-metres.	
49·227	4	5890	Sodium.
48·308	2	5840	
46·980	2	5755	Iron.
44·708	1	5575	Iron.
40·984	2	5440	Iron.
39·158	2	5340	Iron.
38·749	3	5320	Iron.
37·895	4	5280	Iron.

1874, December 2.

Observer, M.

Micrometer.	Wave-length.	Corresponding Element.
	Tenth-metres.	
32·789	4990	Air.
37·373	5170	Magnesium.
50·737	5870	Sodium.

1874, December 2.

Observer, M.

Measures of Bright Lines from Spectra of Elements, for comparison, made at the same time as those above.

Micrometer.	Assumed Wave-length.	Elements.
r	Tenth-metres.	
15·544	4480	Magnesium.
29·253	4861	Hydrogen, Hβ.
32·815	5005	Air.
36·935	5167	Magnesium (b_4).
37·267	5183	Magnesium (b_1).
50·872	5892	Sodium (D).

The assumed wave-lengths are taken from Watt's "Index of Spectra."
Micrometer A used throughout.

δ VIRGINIS.

1875, April 13.

Observer, M.

This Spectrum is crossed by Seven Dark Bands, which shade off on the red side, and have the appearance of being composed of a number of Fine Lines.

Number of Band.	Micrometer.	Wave-length.	Remarks.
	r	Tenth-metres.	
I.	..	..	Too faint to measure.
II.	..	..	Too faint to measure.
III.	27·939	5420	Sharp edge (on the violet side).
IV. First edge	31·690	5255	
Second edge	32·646	5210	Very black.
V. Sharp edge	38·446	4960	Edge on the violet side.
VI. Sharp edge	44·204	4790	Edge on the violet side; band faint.
VII.	..	..	Too faint to measure.
		Assumed Wave-length.	
Hα	11·000	6562	From vacuum tube for comparison.
Hβ	41·719	4861	

Micrometer B used throughout.

DARK LINES IN SPECTRUM OF MARS.

SMALL STAR SPECTROSCOPE.

1875, July 1.

Observer, M.

Micrometer.	Wave-length.	Corresponding Element.	Remarks.
r	Tenth-metres.		
10·263	6560	Hydrogen.	C line.
11·158	6465	Calcium.	
13·742	6257	Iron.	
14·225	6217	Titanium.	
15·052	6153	Sodium or Air.	
18·210	5940	Air.	Very dark line.
18·506	5923	Air.	Dark line.
18·840	5900	Sodium.	D_1 line.
18·904	5895	Sodium.	D_2 line.
19·782	5835	..	Dark line.
23·274	5625	Iron.	
24·475	5560	Air.	

DARK LINES IN SPECTRUM OF MARS—*continued.*

Micrometer.	Wave-length.	Corresponding Element.	Remarks.
r	Tenth-metres.		
25·715	5495	Iron or Air.	
29·282	5337	Iron.	
29·927	5305	Iron.	
30·610	5270	Iron.	
31·484	5230	Iron.	
31·945	5205	Chromium.	
32·503	5183	Magnesium.	b_1 line.
32·802	5170	Magnesium.	b_2 line.
32·922	5165	Magnesium.	b_4 line.

Micrometer B used throughout.
Image tremulous.
The part of the Spectrum lying southwards from its centre, for one-third of the breadth of the Spectrum, was much fainter than the rest. The slit was narrow, and lay north and south.

MEASURES OF THE BREADTH OF FRAUNHOFER LINES.

Taken with Mr. Spottiswoode's Spectroscope.

1875, September 16.

Observer, W. C.

Line.	Measured Breadth.	Wave-length corresponding to 1 rev.	Breadth in Wave-length Measure.	Remarks.
	r	Tenth-metres.	Tenth-metres.	
C	0·167	6·38	1·065	
D_1	0·077	4·31	0·332	D_2 was to the eye broader and more nebulous than D_1.
D_2	0·116	4·31	0·500	
b_1	0·057	2·91	0·166	b_1 seemed a thin line in the middle of a haze.
Haze	0·533	2·91	1·551	
b_2	0·220	2·91	0·640	
b_3	0·068	2·91	0·198	Two lines; a black line on the red side, and a faint nebulous line on the blue.
b_4	0·200	2·91	0·582	
F	0·518	2·19	1·134	

Width of slit = 0·001 inch.

SPECTROSCOPIC OBSERVATIONS of COGGIA'S COMET (III. 1874) made at the ROYAL OBSERVATORY, GREENWICH, in the year 1874.

The comet was examined by Mr. Christie with a dispersive power of one compound prism (dispersion A to H, $7\frac{1}{2}°$) and of two compound prisms, the spectroscope used being adapted to the Great Equatoreal. In the first case a plane reflector was used, to send the rays directly back after passing through the first half prism of the train (which consists of a half prism, four whole prisms, and another half prism silvered on the back, all compound); in the other case, the half prism silvered on the back was placed to receive the rays after passing through the first half prism. The spectrum of the comet was examined on July 3, 4, 7, 12, 13, and 14, and compared with the spectrum of dioxide of carbon, a vacuum tube containing that gas being placed in the telescope two feet from the slit, the plan used by Dr. Huggins in his stellar and nebular observations. The spark was obtained from an induction coil, without a Leyden jar, and under these conditions the spectrum was very similar to that of the comet, consisting of three or more bright bands, on a continuous spectrum, which, with a slight change in the spark, became so bright as nearly to obliterate the bands. In the spectrum of the comet two bright bands were found by direct comparison on every occasion to be sensibly coincident with the two brighter bands of dioxide of carbon; the position of the third band was not determined. All these bands were sharply terminated on the red side, and faded away gradually towards the blue, becoming at the same time shorter in the direction transverse to the continuous spectrum. On July 7 the coma gave in addition to these bands a faint continuous spectrum, which afterwards seemed to become much brighter, so that the bands were quite obliterated on July 14; but this may have been caused by the twilight and haze, as the comet approached the horizon. The spectrum of the nucleus was continuous; it appeared to have traces of numerous bright bands, and three or four dark lines also were seen on several occasions, but owing to passing clouds they were lost before their positions could be determined. One appeared to lie between D and E, another on the blue side of *b*, and a third near F. On July 14 another strip of continuous spectrum was seen to the east of that of the nucleus, corresponding to the brighter side of the coma.

The nucleus on June 22 and July 6 was planetary, about 5″ in diameter; afterwards it seemed to contract and become nearly stellar.

The tail and coma were found to be partially polarised in a plane through the axis of the tail on July 3, 6, 7, and 13, a doubly-refracting prism being used; the polarisation of the tail appeared to be slightly greater than that of the coma.

The following naked-eye observations of the brightness of the nucleus and length of the tail were also made by Mr. Christie.

June 22. Nucleus brighter than * 5 mag. Tail about 3° long.

July 3. Nucleus considerably brighter than o Ursæ Majoris. Tail about 5°.

July 4. Tail about 7°.

July 5. Tail about 12° long, 2° broad at base, extending to 27 Ursæ Majoris.

July 6 and 7. Tail about 15° long.

July 8. Nucleus = β Ursæ Majoris and < α Ursæ Majoris. Tail 16° or 17°.

July 9. Nucleus > β Ursæ Majoris but < α Ursæ Majoris.

July 12. Nucleus > α Ursæ Majoris or α Persei, perhaps = α Aquilæ. Tail extended fully up to o Ursæ Majoris.

July 13. Nucleus nearly = Capella at about same altitude, > α Ursæ Majoris which was 25° higher, and also > α Aquilæ. Tail nearly 20° long.

CARBON COMPOUNDS.

ALCOHOL.

1874, Oct. 23.

Dispersion, Two Prisms.

No Leyden Jars in Circuit.

Observer, M.

Wave-length in Tenth-metres.	REMARKS.
5603	Approximate position of edge towards the red. The band is shaded towards the violet.
5455	Very faint. Shaded pretty regularly to the next band.
5211	Reading of the sharp edge towards the red. Shaded towards the violet.
5168	As the preceding band.
(4861)	Hydrogen line, H β.
4834	Shaded far into the violet.
4375	Approximate position.

CARBONIC DIOXIDE.

I. Two Leyden Jars in Circuit.

Observer, M.

Wave-length in Tenth-metres.				Intensity.	REMARKS.
1875, Mar. 1.	1875, Mar. 8.	1875, Mar. 18.	Mean.		
Half Prism.	Two Prisms.	Half Prism.			
		6305	6305		A faint haze begins about here.
	(5895)		(5895)		D_1 } Comparison lines, Sodium.
	(5889)		(5889)		D_2 } Comparison lines, Sodium.
5712			5712		A faint haze or band.
5623	5609	5603	5612	7	Edge towards the red. Not very sharp; shaded towards the violet.
5210	5216	5202	5209	8	An intermittent line. Something like a band.
5175	5187	5170	5177	7	Edge towards the red. Very sharp. Gradually shaded towards the violet.
4837	4858	4837	4844	8	An intermittent line or band.
4708		4687	4697	7	Brightest part of band; shaded in both directions. Appears like a line at times.
4642			4642	8	Intermittent line.
4582	4546		4564	5	Edge towards the red of narrow band.
4507			4507	3	Intermittent line.
4406			4406	3	Bright line, seen constantly.
4342			4342	4	Intermittent line.
4255			4255	6	Bright line, seen constantly.

CARBONIC DIOXIDE.

II. No Leyden Jars in Circuit.

Observer, M.

Wave-length in Tenth-metres.					Intensity.	REMARKS.
1875, Mar. 1.	1875, Mar. 3.	1875, Mar. 8.	1875, Mar. 22.	Mean.		
Half Prism.	Half Prism.	Two Prisms.	Half Prism.			
(6564)	(6563)		(6563)	(6563)		Comparison line, H α.
	6486			6486		A faint haze begins here.
6336				6336	}	Edge towards the red of a band.
6252				6252	{	Edge towards the violet of a band.
6091	6083		6092	6089	7	BAND I.—Edge towards the red. Sharp.
	6024		6059	6042		Approximate limit of brightest part.
5996				5996		Approximate limit of fainter part.
5938				5938	2	Edge towards the red of a band.
		(5895)		(5895)	}	Comparison lines, D_1 and D_2 of Sodium.
		(5889)		(5889)	}	
5848				5848	2	Edge towards the violet of the above band.
5837	5827			5832	}	Edge towards the red.
5767	5743			5755	4 {	Edge towards the violet.
5728	5709			5719	}	Edge towards the red.
5662	5649			5656	4 {	Edge towards the violet.
5605	5609	5603	5599	5604	9	BAND II.—Edge towards the red. Sharp.
	5592			5592		Approximate limit of brightest part.
5495				5495	1	An exceedingly faint band.
5398	5397		5385	5393	}	Edge towards the red.
	5314			5314	4 {	Edge towards the violet. Approximate position.
5278	5289			5284	}	Edge towards the red.
	5238			5238	2 {	Edge towards the violet. Approximate position.
5202	5207	5193	5198	5200	10	BAND III.—Edge towards the red. Sharp.
5188	5193			5191		Approximate limit of brightest part.
5115				5115		A dark interval.
	5101			5101	3	Brightest part of band.
5034				5034		A dark interval.
	5013			5013	3	Brightest part of band.
(4859)	(4860)	(4862)	(4860)	(4860)		Comparison line, H β.
4837	4839	4837	4842	4839	10	BAND IV.—Edge towards the red. Sharp.
4812	4814			4813		Approximate limit of brightest part.
4686	4714			4700	}	Edge towards the red.
4642	4659			4651	3 {	Edge towards the violet.
4502	4507	4508	4495	4503	6	BAND V.—Edge towards the red. Sharp.
4476	4474			4475		Approximate limit of brightest part.
4382	4386	4384	4372	4381	5	BAND VI.—Edge towards the red. Sharp.
4356				4356		Approximate limit of brightest part.
4116	4115			4116	4	BAND VII.—Edge towards the red. Sharp.
4098				4098		Approximate limit of brightest part.

OLEFIANT GAS.

No Leyden Jars in Circuit.

Observer, M.

Wave-length in Tenth-metres.					Intensity.	REMARKS.
1874, Oct. 26.	1875, Mar. 20.	1875, Mar. 20.	1875, Mar. 22.	Mean.		
Two Prisms.	Half Prism.	Half Prism.	Half Prism.			
	(6566)	(6559)	(6563)	(6563)	10	Hydrogen line, H α. Followed by a dark space.
		6423		6423		A faint haze begins.
		6299		6299	2	Faint line, slightly shaded towards the violet.
		6163		6163	3	Line slightly shaded towards the violet.
	6082	6094	6092	6089	7	BAND I.—First and second edges of brightest part. First edge sharp, second shaded.
		6058	6066	6062		
		6043	6046	6045	6	Bright line.
		5990		5990	3	Bright line.
		5952		5952	3	Bright line.
		5899		5899	3	Bright line.
5822		5826		5824	4	Bright line } First and last lines of a thick cluster of faint lines.
		5749		5749	2	Bright line }
5601	5600	5616	5599	5604	9	BAND II.—First and second edges of brightest part. First edge sharp, second shaded.
5570		5595		5583		
	5452	5465	5455	5457	4	Bright line. No corresponding line in CO_2 spectrum.
		5396		5396	2	Bright line.
		5270		5270	2	Bright line.
5197	5198	5215	5198	5202	10	BAND III.—First and second edges of brightest part. First edge sharp, second shaded.
		5193		5193		
5163				5167	5	Bright line. Measured 1875, March 27, as 5172.
		4936	4924	4930	1	No corresponding line in CO_2 spectrum.
(4861)	(4857)	(4864)	(4860)	(4861)	10	Hydrogen line, H β.
4835	4836	4840	4842	4838	9	BAND IV.—First and second edges of brightest part. First edge sharp, second shaded.
		4826		4826		
4801				4801		Approximate limit of fainter part of the band.
		4677		4677	2	Bright line.
		4625		4625	2	Bright line.
			4612	4612	1	No corresponding line in CO_2 spectrum.
4514	4493	4498	4495	4500	6	BAND V.—First and second edges of brightest part. First edge sharp, second shaded.
		4487		4487		
	4375	4377	4372	4375	4	BAND VI.—First and second edges of brightest part. First edge sharp, second shaded.
		4366		4366		
		4309	4297	4303	1	Approximate position. No corresponding line in CO_2 spectrum.
4208				4208		The haze dies away at about 4208.

1875, March 27.

OLEFIANT GAS.

Dispersion, One Half Prism.

Observer, M.

Two Leyden Jars in Circuit.

The introduction of the jars into the circuit, beside rendering the spectrum flickering, and a little fainter, produced only one change, viz., the very much greater brilliancy with which one line shone.

Micrometer-reading, 16^{r}·995. Wave-length, 5172.

1875, March 29.

Observer, M.

ALCOHOL.

Dispersion, One Half Prism.

No Leyden Jars in Circuit.

The spectrum seemed identical with that of Olefiant gas. The hydrogen lines seemed fainter, however, while the line measured on March 27 was very brilliant.

Two Leyden Jars in Circuit.

This change made the hydrogen lines, and the line above mentioned, much more brilliant, and a number of bright lines were brought out in the violet in the place of the band seen in the spectrum of Carbonic dioxide under the same conditions.

1875, May 20.

CARBONIC DIOXIDE AND OLEFIANT GAS.

Dispersions, One and a half, Two and a half, and Three and a half Prisms.

No Leyden Jars in Circuit.

A slight difference was detected in the manner in which the bands in the two spectra shade off from their sharp edges. In Carbonic dioxide the light begins to lessen at once, but in Olefiant gas the light continues as bright as the edge for a very short distance from it, and then shades off, as in the spectrum of Carbonic dioxide.

1875, June 18.

CARBONIC DIOXIDE AND ALCOHOL.

Dispersions, One and a half, Two, and Two and a half Prisms.

No Leyden Jars in Circuit.

The only difference to be detected was that in the dark space between each pair of bands the light in the spectrum of Carbonic dioxide was very much fainter than in that of Alcohol. In other words the Alcohol spectrum seemed to approximate more closely to the character of a continuous spectrum.

1875, June 21.

CARBONIC DIOXIDE AND CARBONIC OXIDE.

Dispersion, Two Prisms.

No Leyden Jars in Circuit.

In the fainter parts of the spectrum the dioxide was much the brighter, showing a perceptible haze, while the oxide gave no light at all. In the brighter parts no difference was detected.

NOTE.—The spectrum showed the Carbonic oxide to be not quite pure, as the hydrogen lines were seen.

1875, June 23.

CARBONIC DIOXIDE AND CARBONIC OXIDE.

Dispersions, One half, One and a half, Two, Two and a half, Three and a half, and Four Prisms.

No Leyden Jars in Circuit.

With most of these dispersions no difference was detected; but with one and a half and two and a half prisms, more especially the latter, the light in the fainter part of each band was visible a little further to the violet, perhaps a twentieth of the distance between band and band, in the spectrum of the dioxide than in that of the oxide.

CARBONIC OXIDE AND ALCOHOL.

The spectrum of Alcohol was the fainter, but no other difference was detected.

1875, August 9.

CARBONIC DIOXIDE AND CYANOGEN.

Dispersion, One half Compound Prism.

Observer, M.

No Leyden Jars in Circuit.

Index Error, +1·004

Two bright narrow lines were seen in the spectrum of Cyanogen, which did not appear in the other spectrum. The one nearer the red was of about the brightness of the bright edge of Band II., and the other was twice as bright as the very brightest part of the band spectrum.

Micrometer.	Wave-length.	Intensity.	REMARKS.
rev.	Tenth-metres.		
8·968	5809	9	Peculiar to Cyanogen.
11·164	5620	9	Band II. of both spectra.
13·377	5456	20	Peculiar to Cyanogen.
17·697	5191	10	Band III. of both spectra.
24·700	4833	10	Band IV. of both spectra.

Dispersion, Two Prisms.

The two spectra seemed perfectly alike, with the exception of the two lines noted above, which are peculiar to Cyanogen.

NITROGEN.

Dispersion, Two Prisms.

Observer, M.

Wave-length in Tenth-metres.				Intensity.	REMARKS.
1874, Aug. 7. No Leyden Jars.	1874, Aug. 12. Two Leyden Jars.	1874, Sept. 30. Two Leyden Jars.	Mean.		
		6038	6038		Edge towards the red.
5992			5992	3	Edge towards the red.
5957		5958	5958		Approximate position of edge towards the violet.
5938			5938	4	Edges tolerably sharp.
5900			5900		
5885		5887	5886	5	Edges fairly sharp.
		5873	5873		
5854		5856	5855	5	Edges fairly sharp.
5839		5820	5830		
5806		5805	5806	6	Edge towards the red.
5792			5792	6	Both edges slightly, but neither much, shaded.
5774		5774	5774		
5764			5764	6	Fairly sharp edge. The space separating this band from the next is not very dark, and it is difficult to say where one ends and the next begins.
5722			5722		
5715		5722	5719	6	Slightly shaded on both sides.
5678		5680	5679		
		5640	5640		Commencement of a great cluster of bands and lines, which could not be properly broken up.
		5574	5574		Edge towards the violet of a band.
5517			5517		Faintly shaded towards the red.
5465			5465		Centre of dark interval between two bands.
5314			5314	4	Edge towards the violet of band.
5293	5297		5295	2	Edge towards the red of band.
5284			5284		Centre of brightest part.
	5228		5228	3	Edge towards the red.
		5217	5217		Edge towards the violet.
	5203		5203	3	Edge towards the red.
5194			5194	2	Faintly shaded towards the red.
5174	5172	5168	5171	5	The great cluster of bands ends with this one.
5139			5139	4	Broad faint band.

Wave-length in Tenth-metres.				Intensity.	REMARKS.
1874, Aug. 7. No Leyden Jars.	1874, Aug. 12. Two Leyden Jars.	1874, Sept. 30. Two Leyden Jars.	Mean.		
5059	5065	5059	5061	5	Apparently composed of many fine bright lines.
5021	5020		5021	2	Very faint.
	4979		4979	6	Edge towards the red.
4964		4965	4965	6	Edge towards the red.
4906	4910	4913	4910	6	Edge towards the red. Shades off very gradually.
4858	4858	4858	4858	7	Bright thin line, not shaded at all.
4807	4811	4810	4809	6	Edge towards the red. Sharp.
		4775	4775		Approximate position of edge towards the violet. Shaded.
4726	4722	4723	4724	5	Edge towards the red. Sharp.
		4692	4692		Approximate position of edge towards the violet. Shaded.
4668	4657	4667	4664	4	Edge towards the red. Sharp.
		4658	4658		Approximate position of edge towards the violet. Shaded.
4650	4648	4652	4650	5	Edge towards the red. Sharp.
		4624	4624		Approximate position of edge towards the violet. Shaded.
	4595		4595	1	Very faint line. Shaded towards the violet. Approximate position.
4575	4571	4576	4574	6	Edge towards the red. Sharp.
		4548	4548		Approximate position of edge towards the violet. Shaded.
4496	4495	4492	4494	6	Edge towards the red. Sharp.
		4463	4463		Approximate position of edge towards the violet. Shaded.
4421		4418	4420		Edge towards the red. Sharp.
4417	4416		4417	6	Approximate position of edge towards the violet. Shaded.
		4366	4366		Approximate limit of faint shading.
4357	4362	4357	4359	6	Edge towards the red. Sharp.
4352		4354	4353		Approximate position of edge towards the violet. Shaded.
4349	4348	4346	4348	6	Edge towards the red. Sharp.
4341			4341		Approximate position of edge towards the violet. Shaded.
		4326	4326		Approximate limit of faint shading.
	4288		4288	1	An exceedingly faint sharp line, only seen in the centre of the field. Approximate position.
	4277	4271	4274	7	Edge towards the red. Sharp.
		4239	4239		Approximate position of edge towards the violet. Shaded.
4198	4200	4200	4199	6	Edge towards the red. Sharp.
4193	4174	4169	4179		Approximate position of edge towards the violet. Shaded.
4136	4140		4138	5	Bright line with a faint shading towards the violet.
	4094		4094	3	Faint line, or narrow band, slightly nebulous.
	4064		4064	3	Narrow band; seen with difficulty.

The spectrum is composed of a number of bright bands, which are almost always sharp on the side towards the red end of the spectrum, but which are shaded off, for the most part regularly and gradually, towards the violet end.

1874, November 20.

LEAD.

Examination of line nearly coincident with the double line of Nitrogen; wave-length (Thalén), 5005 and 5002.

Mr. Spottiswoode's Spectroscope :—Dispersion, 20 Prisms.

Observer, M.

Maximum Length of Spark.			Actual Distance between Electrodes.	REMARKS.
Without Leyden Jars.	With Small Leyden Jar.	With both Leyden Jars.		
in.	in.	in.	in.	
1·30	0·15	0·20	0·06	A bright line, longer than the Nitrogen line, seen distinctly *on* the less refrangible line of the pair. As the distance between the electrodes was lengthened or the battery power increased, this appearance grew less and less distinct. No difference appeared to be produced by removing the large jar from the circuit, and using the small jar alone. The Lead line near (wave-length 5045) was brighter than the double Nitrogen line.

Maximum Length of Spark.			Actual Distance between Electrodes.	REMARKS.
Without Leyden Jars.	With Small Leyden Jar.	With both Leyden Jars.		
in.	in.	in.	in.	
1·70		0·25	0·20	With the distance between the electrodes and the intensity of the spark thus increased, and with both jars in the circuit, there was no trace of the new line, and P b 5045 was much fainter than the Nitrogen pair.
0·80	0·07		0·05	But with spark intensity and distance between the electrodes thus diminished, the small jar only being used, the Nitrogen pair only appeared after contact had been made some little time (from half a second to a second), while the new line appeared at once, and was three times as bright as they.
0·70	0·03		0·01 to 0·015	On still further diminishing the spark intensity and the distance between the electrodes, and still using only the small jar, the Nitrogen pair quite disappeared, while the new line continued very bright. It was a much sharper line than P b 5045, and under these conditions at least as bright.

Measures of breadth of Lead line, wave-length 5005, as compared with breadths of the double line of Nitrogen, and of the Lead line 5045.

Dispersion, Two Prisms.

Lead line 5045 in Hydrogen.

Observer, M.

Date.	Slit.	First Edge.	Second Edge.	Breadth.	Correction to Slit of $0^{in}\cdot001$.	Breadth with Slit of $0^{in}\cdot001$.	Mean.	Breadth in Wave-length.
	d	r	r	r	r	r	r	Tenth-metres.
1874, Nov. 28	3·0	0·923	0·204	0·719	0·120	0·599		
	3·0	0·930	0·166	0·764	0·120	0·644		
1875, Feb. 8	2·1	5·390	4·589	0·801	0·108	0·693		
	2·1	4·890	4·360	0·530	0·108	0·422	0·590	5·024
Lead line 5045 in Air.								
1874, Nov. 28	3·0	5·761	5·279	0·482	0·120	0·362		
	3·0	6·624	5·952	0·672	0·120	0·552		
1875, Feb. 4	3·0	6·256	5·605	0·651	0·180	0·471		
	3·0	6·271	5·631	0·640	0·180	0·460		
	1·5	6·289	5·168	1·121	0·060	1·061		
	1·5	6·090	5·515	0·575	0·060	0·515		
	2·5	5·982	5·198	0·784	0·138	0·646		
	3·5	5·907	5·166	0·741	0·222	0·519		
1875, Feb. 22	2·1	1·382	0·603	0·779	0·108	0·671		
	2·1	1·405	0·723	0·682	0·108	0·574		
	2·1	1·642	1·083	0·559	0·108	0·451		
	2·1	0·732	0·030	0·702	0·108	0·594	0·573	4·879
Lead line 5005 in Hydrogen.								
1874, Nov. 28	3·0	0·989	0·409	0·580	0·120	0·460		
	3·0	0·976	0·526	0·450	0·120	0·330		
	3·0	0·931	0·725	0·206	0·120	0·086		
1875, Feb. 28	2·1	0·477	0·215	0·262	0·108	0·154	0·258	2·197

Lead line 5005 in Air.

Date.	Slit.	First Edge.	Second Edge.	Breadth.	Correction to Slit of 0in·001.	Breadth with Slit of 0in·001.	Mean.	Breadth in Wave-length.
	d	r	r	r	r	r	r	Tenth-metres.
1875, Feb. 4	3·0	1·439	1·193	0·246	0·180	0·066		
	1·5	1·063	0·859	0·204	0·060	0·144		
	1·5	1·098	0·985	0·113	0·060	0·053		
	2·5	1·057	0·874	0·183	0·138	0·045		
	1·5	0·957	0·855	0·102	0·060	0·042		
1875, Feb. 22	2·1	5·598	5·347	0·251	0·108	0·143		
	2·1	5·773	5·574	0·199	0·108	0·091		
	2·1	5·806	5·564	0·242	0·108	0·134	0·090	0·766

Nitrogen line 5005.

1874, Nov. 28	3·0	0·971	0·728	0·243	0·120	0·123		
	3·0	1·758	1·468	0·290	0·120	0·170		
1875, Feb. 4	3·0	1·473	1·170	0·303	0·180	0·123	0·139	1·184

Nitrogen line 5002.

1874, Nov. 28	3·0	0·583	0·245	0·338	0·120	0·218		
	3·0	1·231	0·934	0·297	0·120	0·177		
1875, Feb. 4	3·0	0·995	0·677	0·318	0·180	0·138	0·178	1·516

Measures of relative positions of Lead line 5005, and of the double line of Nitrogen.

Dispersion, Two Prisms.

Distance between P b 5045 and P b 5005.

Observer, M.

Date.	P b 5045.	P b 5005.	Difference.	Difference in Wave-length.	Remarks.
	r	r	r	Tenth-metres.	
1874, Nov. 28	5·733	0·895	4·838		In hydrogen.
	4·855	0·003	4·852		In hydrogen.
1875, Feb. 4	5·931	1·316	4·615		
	5·729	0·961	4·768		
	5·803	1·042	4·761		
	5·590	0·966	4·624		
	5·537	0·906	4·631		
1875, Feb. 8	4·980	0·346	4·634		
1875, Feb. 22	0·993	5·473	4·480		
	1·064	5·673	4·609		
	1·362	5·685	4·323		
		Mean	4·649	39·59	

Distance between P b 5045 and N 5005.

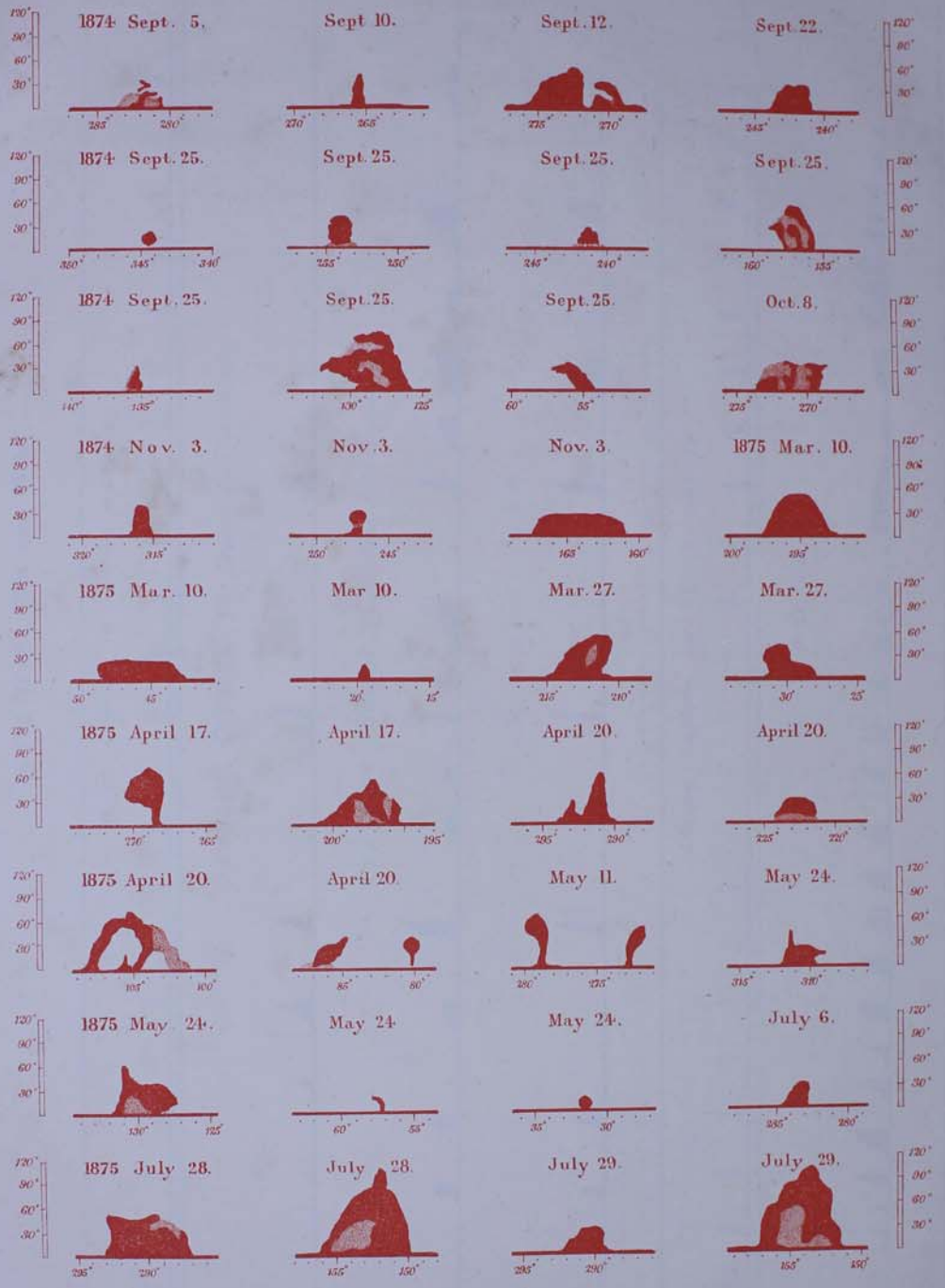
Date.	P b 5045.	N 5005.	Difference.	Difference in Wave-length.	Remarks.
	r	r	r	Tenth-metres.	
1874, Nov. 28	6·125	1·319	4·806		In air.
	5·520	0·850	4·670		
	6·288	1·613	4·675		
1874, Dec. 24	5·602	0·944	4·658		
	5·646	0·944	4·702		
1875, Feb. 4	5·951	1·322	4·629		
		Mean	4·690	39·94	

Distance between P b 5045 and N 5002.

Date.	P b 5045.	N 5002.	Difference.	Difference in Wave-length.	Remarks.
1874, Nov. 28	6·125	0·838	5·287		In air.
	5·520	0·414	5·106		
	6·288	1·083	5·205		
1874, Dec. 24	5·602	0·389	5·213		
	5·646	0·449	5·197		
1875, Feb. 4	5·951	0·836	5·115		
		Mean	5·187	44·17	

Plate 1.

SOLAR PROMINENCES OBSERVED AT THE ROYAL OBSERVATORY GREENWICH. IN THE YEARS 1874 AND 1875.



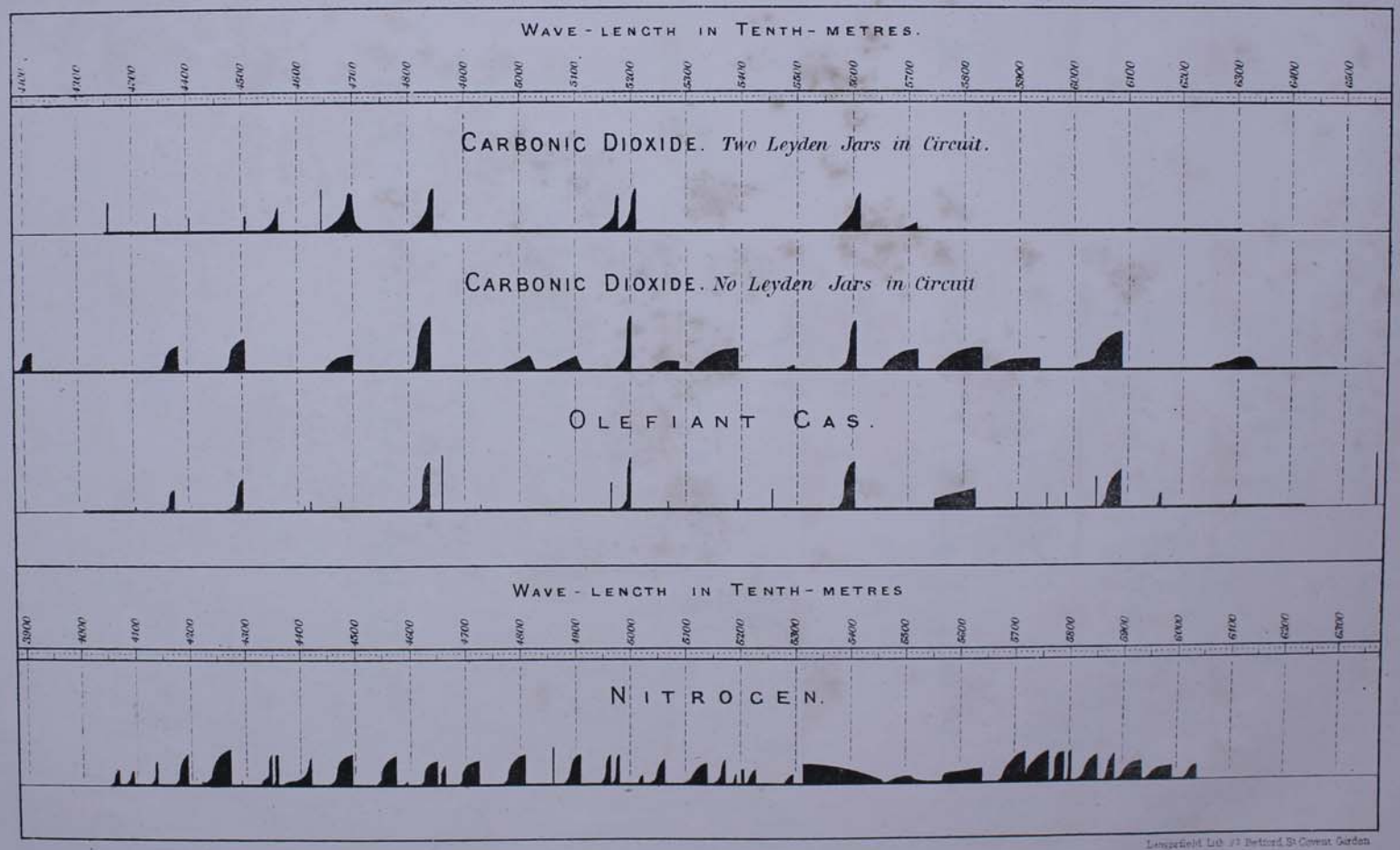
The horizontal scales give the position angles round the Sun's limb, measured from N. point in direction N.E.S.W.

The vertical scales give heights above the Sun's limb in seconds of arc.

Dangerfield Lith 22 Bedford St Covent Garden

Plate II.

SPECTRA OF CARBON COMPOUNDS AND OF NITROGEN OBSERVED AT THE ROYAL OBSERVATORY, GREENWICH, IN THE YEARS 1874 AND 1875.



Lowerfield Lith. 73 Bedford St Covent Garden

ROYAL OBSERVATORY, GREENWICH.

MEASURES OF AREAS

OF

SPOTS AND FACULÆ

UPON THE SUN'S DISK

ON

PHOTOGRAPHS

TAKEN WITH THE

PHOTOHELIOGRAPH.

1875.

MEASURES of AREAS of SPOTS and FACULÆ upon the SUN'S DISK on PHOTOGRAPHS taken at the ROYAL OBSERVATORY, GREENWICH, in the Year 1875, expressed in millionths of the Sun's visible hemisphere.

Day.	Spots.					Faculæ.			Day.	Spots.					Faculæ.		
	No. of Group and Letter for Spot.	Distance from Centre, and [Radius of Sun].	Area of PENUMBRA for each Spot, [and for Day].	Area of UMBRA for each Spot, [and for Day].	Area of WHOLE for each Spot, [and for Day].	Group.	Distance from Centre.	Area for each Group, [and for Day].		No. of Group and Letter for Spot.	Distance from Centre, and [Radius of Sun].	Area of PENUMBRA for each Spot, [and for Day].	Area of UMBRA for each Spot, [and for Day].	Area of WHOLE for each Spot, [and for Day].	Group.	Distance from Centre.	Area for each Group, [and for Day].
1875.									1875.								
Jan. 2	141	108	183	31	214				Feb. 15			o	o	o			o
		[194]	[183]	[31]	[214]						[192]	[o]	[o]	[o]			[o]
									Feb. 16			o	o	o			o
Jan. 5	141	185	109	30	140	141	180	1664			[192]	[o]	[o]	[o]			o]
						(80°)	179	432							(270°)	150	514
		[194]	[109]	[30]	[140]			[2096]	Feb. 18						(90°)	166	241
Jan. 6						141	187	391		145	191	365	138	503	145	180	147
						(290°)	187	235			[192]	[365]	[138]	[503]			[902]
						(80°)	175	416									
		[194]	[o]	[o]	[o]			[1042]	Feb. 21	145	142	557	168	724			
										146	123	321	62	383			
Jan. 16						(280°)	186	952			[192]	[878]	[230]	[1107]			
						(250°)	156	697									
	142	108	36	6	41				Feb. 22	145	117	543	143	687			
		[194]	[36]	[6]	[41]			[1649]		146	86	233	51	279			
										147	191	155	o	155			
Jan. 22						(250°	172	150			[192]	[931]	[194]	[1121]			
	142	123	439	115	554	142	165	407									
	143	55	62	16	76				Feb. 23	145	94	572	124	698			
						(100°)	167	1276		146	44	257	56	313			
		[193]	[501]	[131]	[630]			[1833]		147	181	135	23	158	147	181	422
											[192]	[964]	[203]	[1169]			[422]
Jan. 25	142	187	56	o	56	142	188	821									
	143	136	38	o	38				Feb. 25	145	91	564	130	695			
		[193]	[94]	[o]	[94]			[821]		146	40	162	53	215			
										147	132	187	21	108	147	170	360
Jan. 27						(280°)	181	486			[192]	[813]	[204]	[1018]			[360]
						(60°)	178	524									
		[193]	[o]	[o]	[o]			[1010]	Feb. 26	145	114	568	145	714			
										146	81	128	16	144			
Jan. 28			o	o	o			o		147	108	27	o	27			
		[193]	[o]	[o]	[o]			[o]			[192]	[723]	[161]	[885]			
Jan. 30						(280°)	174	225	Mar. 5	147	179	28	o	28	147	173	544
						(240°)	156	654		148	78	60	15	74			
						(70°)	186	411			[192]	[88]	[15]	[102]			[544]
		[193]	[o]	[o]	[o]			[1290]									
									Mar. 9	148	170	228	51	281	148	169	1207
Jan. 31						(270°)	186	427							(50°)	165	373
						(60°)	170	1016		149	188	179	o	179	149	175	104
		[193]	[o]	[o]	[o]			[1443]			[192]	[407]	[51]	[460]			[1684]
Feb. 2						(280°)		279	Mar. 10	148	188	219	27	246	148	170	988
						(240°)		711		149	179	161	20	181	149	181	692
	144	183	134	43	177	144	185	2056			[192]	[380]	[47]	[427]			[1680]
		[193]	[134]	[43]	[177]			[3046]									
									Mar. 11						148	174	567
Feb. 4						(250°)	166	181		149	158	155	30	184	149	159	664
	144	113	72	17	89					150	187	153	45	202			
		[192]	[72]	[17]	[89]			[181]			[191]	[308]	[75]	[386]			[1231]

The distance from Centre and the Radius of the Sun are expressed in hundredths of an inch.

The groups of Spots are numbered in the order of their appearance at the E. limb of the Sun.

Those groups of Faculæ which are associated with Spots are denoted by the numbers of the corresponding groups of Spots, the others are defined by their approximate Position Angles on the Sun's limb measured from N. in the direction N. E. S. W.

Measures of Areas of Spots and Faculæ upon the Sun's Disk—*continued*.

Day.	Spots.					Faculæ.			Day.	Spots.					Faculæ.		
	No. of Group and Letter for Spot.	Distance from Centre, and [Radius of Sun].	Area of PENUMBRA for each Spot, [and for Day].	Area of UMBRA for each Spot, [and for Day].	Area of WHOLE for each Spot, [and for Day].	Group.	Distance from Centre.	Area for each Group, [and for Day].		No. of Group and Letter for Spot.	Distance from Centre, and [Radius of Sun].	Area of PENUMBRA for each Spot, [and for Day].	Area of UMBRA for each Spot, [and for Day].	Area of WHOLE for each Spot, [and for Day].	Group.	Distance from Centre.	Area for each Group, [and for Day].
1875.									1875.								
Mar. 14	149	50	14	0	14				Apr. 5						(270°)	175	454
	150	110	141	28	169					153	50	16	0	16			
		[191]	[155]	[28]	[183]						[191]	[16]	[0]	[16]			[454]
Mar. 15	149	13	29	0	29												
	150	75	141	24	166				Apr. 6						(270°)	168	405
		[190]	[170]	[24]	[195]					153	50	43	1	44			
Mar. 18						(260°)	165	435			[190]	[43]	[1]	[44]			[405]
	150a	78	65	21	86				Apr. 8						(260°)	181	433
	150b	54	19	6	25					153	116	17	0	17			
						(80°)	175	518			[190]	[17]	[0]	[17]			[433]
	151	182	294	89	383	151	185	346									
		[190]	[378]	[116]	[494]			[1299]	Apr. 13	153	154	35	0	35	153	175	270
Mar. 23						(240°)	175	270		154	74	78	21	99			
	150	130	306	95	402					155	116	392	82	475			
	151	84	270	63	333						[190]	[505]	[103]	[609]			[270]
						(50°)	160	328									
		[191]	[576]	[158]	[735]			[598]	Apr. 14	153	174	79	0	79	153	174	743
Mar. 25	150	178	390	102	491	150	177	876		154	50	73	32	105			
	151	103	260	66	325					155	82	349	80	429			
						(80°)	176	234			[190]	[501]	[112]	[613]			[743]
		[191]	[650]	[168]	[816]			[1110]	Apr. 16	154	81	128	39	168			
Mar. 26	150	189	213	0	213	150	187	170		155	29	260	74	335			
	151	132	264	59	323										(30°)	166	823
						(50°)	184	565			[190]	[388]	[113]	[503]			[823]
		[191]	[477]	[59]	[536]			[735]	Apr. 17	154	114	127	21	148			
Mar. 27	151	150	247	40	287					155	50	265	66	329			
						(50°)	175	562							(30°)	155	707
		[191]	[247]	[40]	[287]			[562]							(40°)	175	394
Mar. 28	151	173	273	57	330						[190]	[392]	[87]	[477]			[1101]
						(270°)	168	610	Apr. 18	154	153	90	16	105	154	144	250
	152	44	35	0	35					155	89	228	63	292			
						(50°)	181	1153							(40°)	174	197
		[191]	[308]	[57]	[365]			[1763]			[190]	[318]	[79]	[397]			[447]
Apr. 1	152	36	95	20	115				Apr. 19	154	172	64	10	74	154	166	615
		[191]	[95]	[20]	[115]					155	120	211	31	243			
															(40°)	177	241
Apr. 2	151	168	95	27	122	151	164	525			[190]	[275]	[41]	[317]			[856]
	152	41	161	33	194												
		[191]	[256]	[60]	[316]			[525]	Apr. 20	154	188	79	0	79	154	184	509
										155	154	196	47	243	155	150	759
Apr. 4						(270°)	154	275		156a	180	29	0	29	156a	169	579
	152	110	54	0	54						[190]	[304]	[47]	[351]			[1847]
	153	159	11	0	11	153	158	281									
						(50°)	175	346	Apr. 24						50°	163	291
		[191]	[65]	[0]	[65]			[902]			[190]	[0]	[0]	[0]			[291]

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Measures of Areas of Spots and Faculæ upon the Sun's Disk—*continued*.

Day.	Spots. No. of Group and Letter for Spot.	Spots. Distance from Centre, and [Radius of Sun].	Spots. Area of PENUMBRA for each Spot, [and for Day].	Spots. Area of UMBRA for each Spot, [and for Day].	Spots. Area of WHOLE for each Spot, [and for Day].	Faculæ. Group.	Faculæ. Distance from Centre.	Faculæ. Area for each Group, [and for Day].
1875.								
Apr. 25						(270°)	177	652
	156b	175	209	53	262	156b	177	712
		[190]	[209]	[53]	[262]			[1364]
Apr. 26	156b	153	144	38	183			
	157	187	550	0	550			
		[190]	[694]	[38]	[733]			
Apr. 27	156	125	188	47	235			
	157	173	702	105	808	157	176	1490
		[190]	[890]	[152]	[1043]			[1490]
Apr. 28	156	86	152	28	178			
	157	150	646	127	773	157	160	922
		[190]	[798]	[155]	[951]			[922]
Apr. 29	156	45	114	32	146			
	157	120	853	133	981			
		[189]	[967]	[165]	[1127]			
Apr. 30	156	7	38	0	38			
	157	90	699	74	773			
		[189]	[737]	[74]	[811]			
May 3	156	115	48	15	63			
	157	66	580	92	672			
		[189]	[628]	[107]	[735]			
May 4	156	145	43	7	50			
	157	98	483	92	577			
		[189]	[526]	[99]	[627]			
May 5	156	167	29	0	29			
	157	128	495	93	585			
		[188]	[524]	[93]	[614]			
May 6	157	158	310	89	397			
		[188]	[310]	[89]	[397]			
May 9						(80°)	167	454
		[188]	[0]	[0]	[0]			[454]
May 10			0	0	0			0
		[188]	[0]	[0]	[0]			[0]
May 11			0	0	0			0
		[188]	[0]	[0]	[0]			[0]
May 12			0	0	0			0
		[188]	[0]	[0]	[0]			[0]

Day.	Spots. No. of Group and Letter for Spot.	Spots. Distance from Centre, and [Radius of Sun].	Spots. Area of PENUMBRA for each Spot, [and for Day].	Spots. Area of UMBRA for each Spot, [and for Day].	Spots. Area of WHOLE for each Spot, [and for Day].	Faculæ. Group.	Faculæ. Distance from Centre.	Faculæ. Area for each Group, [and for Day].
1875.								
May 13			0	0	0			0
		[188]	[0]	[0]	[0]			[0]
May 14						(240°)	166	270
						(50°)	177	295
		[188]	[0]	[0]	[0]			[565]
May 15						(260°)	153	210
						(40°)	171	477
		[188]	[0]	[0]	[0]			[687]
May 17						(260°)	173	230
						(230°)	159	211
						(40°)	175	136
		[188]	[0]	[0]	[0]			[577]
May 19			0	0	0			0
		[188]	[0]	[0]	[0]			[0]
May 21						(60°)	183	236
		[188]	[0]	[0]	[0]			[236]
May 22			0	0	0			0
		[188]	[0]	[0]	[0]			[0]
May 23			0	0	0			0
		[188]	[0]	[0]	[0]			[0]
May 24	158	72	44	0	44			
	159	170	32	0	32	159	177	908
		[188]	[76]	[0]	[76]			[908]
May 26	159	111	27	0	27			
		[188]	[27]	[0]	[27]			
June 1	160	165	75	3	78			
		[188]	[75]	[3]	[78]			
June 2						(270°)	161	638
	160	139	214	33	247	160	170	549
		[188]	[214]	[33]	[247]			[1187]
June 3						(270°)	170	686
	160	104	445	61	505			
		[188]	[445]	[61]	[505]			[686]
June 4						(270°)	181	217
	160	70	404	72	478			
		[188]	[404]	[72]	[478]			[217]
June 5	160	39	423	96	519			
		[188]	[423]	[96]	[519]			

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Measures of Areas of Spots and Faculæ upon the Sun's Disk—*continued*.

Day.	Spots.					Faculæ.			Day.	Spots.					Faculæ.		
	No. of Group and Letter for Spot.	Distance from Centre, and [Radius of Sun].	Area of PENUMBRA for each Spot, [and for Day].	Area of UMBRA for each Spot, [and for Day].	Area of WHOLE for each Spot, [and for Day].	Group.	Distance from Centre.	Area for each Group, [and for Day].		No. of Group and Letter for Spot.	Distance from Centre, and [Radius of Sun].	Area of PENUMBRA for each Spot, [and for Day].	Area of UMBRA for each Spot, [and for Day].	Area of WHOLE for each Spot, [and for Day].	Group.	Distance from Centre.	Area for each Group, [and for Day].
1875.									1875.								
June 8	160	108	446	57	502				July 6	164	104	27	12	39			
		[188]	[446]	[57]	[502]						[188]	[27]	[12]	[39]			
June 10	160	167	372	59	432	160	159	701	July 7	164	136	28	9	37			
		[188]	[372]	[59]	[432]			[701]			[188]	[28]	[9]	[37]			
June 11	160	182	368	86	455	160	182	588									
		[188]	[368]	[86]	[455]			[588]	July 10	164	99	109	35	144			
June 15			0	0	0			0							(80°)	178	825
		[188]	[0]	[0]	[0]			[0]			[188]	[109]	[35]	[144]			[825]
June 16	161	155	157	22	179	161	156	234	July 18						(300°)	181	217
		[188]	[157]	[22]	[179]			[234]			[188]	[0]	[0]	[0]			[217]
June 17	161	70	458	87	545				July 20						(290°)	164	581
		[188]	[458]	[87]	[545]						[188]	[0]	[0]	[0]			[581]
June 19	161	24	603	115	718				July 24						(260°)	179	309
						(70°)	171	217		165	107	12	0	12			
		[188]	[603]	[115]	[718]			[217]							(100°)	180	218
June 20	161	67	461	111	573						[188]	[12]	[0]	[12]			[527]
		[188]	[461]	[111]	[573]				July 25						(260°)	165	329
June 22	161	133	367	72	440					165	84	21	0	21			
	162	38	174	31	205										(100°)	171	206
		[188]	[541]	[103]	[645]						[188]	[21]	[0]	[21]			[535]
									July 26	166	175	165	19	184	166	176	756
June 23	161	159	232	103	333	161	159	955			[188]	[165]	[19]	[184]			[756]
	162	61	448	105	551												
		[188]	[680]	[208]	[884]			[955]	July 27	166	150	95	0	95			
											[188]	[95]	[0]	[95]			
June 24	161	177	155	3	158	161	176	564									
	162	97	598	169	767				July 28						(270°)	182	161
		[188]	[753]	[172]	[925]			[564]		166	126	139	32	170			
															(120°)	173	184
June 25	162	131	706	155	862						[188]	[139]	[32]	[170]			[345]
		[188]	[706]	[155]	[862]												
									July 29						(270°)	177	187
June 26	162	158	705	122	826					166	89	177	31	208			
		[188]	[705]	[122]	[826]						[188]	[177]	[31]	[208]			[187]
June 27	162	177	509	104	609	162	176	717	July 30	166	41	141	26	167			
	163	180	143	28	170	163	178	336			[188]	[141]	[26]	[167]			
		[188]	[652]	[132]	[779]			[1053]									
									July 31	166	12	118	7	125			
June 29	163	140	93	18	111						[188]	[118]	[7]	[125]			
		[188]	[93]	[18]	[111]												
									Aug. 2	166a	169	228	44	272			
July 3	163	49	85	21	106					166b	109	186	33	218			
	164	174	124	12	137	164	172	256							(90°)	152	123
		[188]	[209]	[33]	[243]			[256]			[188]	[414]	[77]	[490]			[123]

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Measures of Areas of Spots and Faculæ upon the Sun's Disk—*continued.*

Day.	Spots.					Faculæ.			Day.	Spots.					Faculæ.		
	No. of Group and Letter for Spot.	Distance from Centre, and [Radius of Sun].	Area of PENUMBRA for each Spot, [and for Day].	Area of UMBRA for each Spot, [and for Day].	Area of WHOLE for each Spot, [and for Day].	Group.	Distance from Centre.	Area for each Group, [and for Day].		No. of Group and Letter for Spot.	Distance from Centre, and [Radius of Sun].	Area of PENUMBRA for each Spot, [and for Day].	Area of UMBRA for each Spot, [and for Day].	Area of WHOLE for each Spot, [and for Day].	Group.	Distance from Centre.	Area for each Group, [and for Day].
1875.									1875.								
Aug. 3	166a	144	88	36	124				Aug. 31	168	144	62	12	75	168	159	1071
	166b	110	115	29	145										169	157	328
		[188]	[203]	[65]	[269]						[189]	[62]	[12]	[75]			[1399]
Aug. 5	166a	183	87	0	87	166	167	641	Sept. 1						169	165	969
	166b	170	76	36	111						[189]	[0]	[0]	[0]			[969]
		[188]	[163]	[36]	[198]			[641]									
									Sept. 4			0	0	0			0
Aug. 10						(300°)	155	151			[189]	[0]	[0]	[0]			[0]
		[188]	[0]	]	[0]			[151]									
									Sept. 6			0	0	0			0
Aug. 11						(300°)	174	214			[189]	[0]	[0]	[0]			[0]
						(100°)	183	629									
		[188]	[0]	[0]	[0]			[843]									
									Sept. 7			0	0	0			0
Aug. 13						(300°)	174	321			[189]	[0]	[0]	[0]			[0]
						(100°)	154	401									
		[188]	[0]	[0]	[0]			[722]	Sept. 9						(280°)	178	291
															(310°)	169	220
Aug. 16						(300°)	170	243		170	108	19	0	19			
		[188]	[0]	[0]	[0]			[243]							(100°)	175	225
											[189]	[19]	[0]	[19]			[736]
Aug. 20						(270°)	179	118									
						(120°)	180	140	Sept. 13			0	0	0			0
		[188]	[0]	[0]	[0]			[258]			[189]	[0]	[0]	[0]			[0]
Aug. 21	167	173	93	22	115				Sept. 14	171	182	137	36	173	171	181	617
	168	187	323	57	380	168	181	650			[189]	[137]	[36]	[173]			[617]
		[188]	[416]	[79]	[495]			[650]									
									Sept. 15						(270°)	161	136
Aug. 22						(290°)	169	330		171	166	65	8	73	171	164	395
	167	147	56	25	82					172	58	9	0	9			
	168	172	251	50	300	168	174	1498			[189]	[74]	[8]	[82]			[531]
		[188]	[307]	[75]	[382]			[1828]									
									Sept. 16	171	141	43	0	43	171	141	641
Aug. 23						(290°)	180	146			[190]	[43]	[0]	[43]			[641]
	167	122	38	12	51												
	168	156	194	48	242	168	161	968	Sept. 27						(310°)	170	534
						(120°)	179	249		173	139	88	18	105			
		[189]	[232]	[60]	[293]			[1363]							(110°)	192	202
											[196]	[88]	[18]	[105]			[736]
Aug. 27	167	47	23	0	23												
	168	3	101	27	128				Sept. 29						(310°)	177	136
		[189]	[124]	[27]	[151]					173	70	115	19	133			
										174	116	29	1	30			
Aug. 29	168	76	94	33	128										(110°)	158	56
		[189]	[94]	[33]	[128]						[196]	[144]	[20]	[163]			[192]
Aug. 30	168	114	102	22	123				Sept. 30	173	50	89	32	120			
	169	174	14	0	14	169	175	341		174	146	14	0	14			
		[189]	[116]	[22]	[137]			[341]			[194]	[103]	[32]	[134]			

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Measures of Areas of Spots and Faculæ upon the Sun's Disk—*continued.*

Day.	Spots.					Faculæ.			Day.	Spots.					Faculæ.		
	No. of Group and Letter for Spot.	Distance from Centre, and [Radius of Sun].	Area of PENUMBRA for each Spot, [and for Day].	Area of UMBRA for each Spot, [and for Day].	Area of WHOLE for each Spot, [and for Day].	Group.	Distance from Centre.	Area for each Group, [and for Day].		No. of Group and Letter for Spot.	Distance from Centre, and [Radius of Sun].	Area of PENUMBRA for each Spot, [and for Day].	Area of UMBRA for each Spot, [and for Day].	Area of WHOLE for each Spot, [and for Day].	Group.	Distance from Centre.	Area for each Group, [and for Day].
1875.									1875.								
Oct. 2	173	53	140	27	166				Oct. 26	180	158	267	52	319			
	174	187	20	0	20	174	184	373			[198]	[267]	[52]	[319]			
	175	88	53	0	53												
		[195]	[213]	[27]	[239]			[373]	Nov. 2	180	123	222	83	305			
											[198]	[222]	[83]	[305]			
Oct. 5	173	149	58	27	85	173	179	171									
	176	147	15	0	15	176	170	197	Nov. 6			0	0	0			0
	177	74	25	3	27						[198]	[0]	[0]	[0]			[0]
		[195]	[98]	[30]	[127]			[368]	Nov. 8			0	0	0	(290°)	174	246
Oct. 6						(290°)	189	306			[198]	[0]	[0]	[0]			[246]
						(280°)	171	119	Nov. 10			0	0	0			0
	173	168	63	16	79	173	168	217			[198]	[0]	[0]	[0]			[0]
	176	167	11	0	11	176	169	328									
	177	112	11	0	11				Nov. 12			0	0	0			0
		[196]	[85]	[16]	[101]			[970]			[198]	[0]	[0]	[0]			[0]
Oct. 7						(280°)	185	135	Nov. 15						(270°)	190	169
	173	187	20	0	20	173	185	209		181	182	9	0	9	181	176	204
						176	188	258							(140°)	178	223
	177	140	88	34	122						[198]	[9]	[0]	[9]			[596]
		[196]	[108]	[34]	[142]			[602]	Nov. 18	182a	118	101	34	135			
Oct. 9	177	189	20	0	20	177	185	160		182b	134	46	14	61			
	178	45	12	0	12										183	184	544
		[196]	[32]	[0]	[32]			[160]			[198]	[147]	[48]	[196]			[544]
Oct. 10	178	76	26	5	32				Nov. 19	182a	80	117	24	140			
		[197]	[26]	[5]	[32]					182b	96	35	6	42			
										183	141	28	7	35	183	168	520
Oct. 11			0	0	0	(120°)	186	424			[198]	[180]	[37]	[217]			[520]
		[197]	[0]	[0]	[0]			[424]	Nov. 20	182a	36	88	37	126			
Oct. 12			0	0	0			0		182b	51	60	16	75			
		[197]	[0]	[0]	[0]			[0]		183	100	51	13	63			
										184	175	78	23	101			
Oct. 13			0	0	0			0		185	196	81	0	81			
		[197]	[0]	[0]	[0]			[0]			[198]	[358]	[89]	[446]			
Oct. 17	179	28	4	0	4			0	Nov. 22	182a	64	74	21	95			
		[197]	[4]	[0]	[4]			[0]		182b	52	55	16	69			
										183	35	16	3	19			
Oct. 18			0	0	0			0		184	120	203	63	266			
		[197]	[0]	[0]	[0]			[0]		185	167	40	18	57	185	171	369
											[198]	[388]	[121]	[506]			[369]
Oct. 21						(300°)	168	78									
	179	32	21	0	21				Nov. 23	182a	117	69	28	97			
		[197]	[21]	[0]	[21]			[78]		182b	99	33	6	39			
										183	52	9	0	9			
Oct. 25	180	180	405	85	490	180	187	769		184a	71	138	44	181			
		[198]	[405]	[85]	[490]			[769]		184b	87	69	19	88			

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Measures of Areas of Spots and Faculæ upon the Sun's Disk—*concluded.*

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1875.									1875.								
Nov. 23	185	136	52	10	62				Dec. 17	188	54	42	23	65			
cont.		[198]	[370]	[107]	[476]					189	153	317	55	372	189	169	291
											[199]	[359]	[78]	[437]			[291]
Nov. 25	182	177	121	29	149	182	165	162									
	183	53	20	0	20				Dec. 23	188	184	27	0	27	188	183	184
	184a	44	156	30	186					189	103	131	30	161			
	184b	35	43	10	53						[199]	[158]	[30]	[188]			[184]
	185	61	25	15	39												
		[198]	[365]	[84]	[447]			[162]	Dec. 24						188	196	155
										189	140	68	17	83			
Dec. 14	186	62	11	0	11						[200]	[68]	[17]	[83]			[155]
	187	140	10	0	10												
		[199]	[21]	[0]	[21]												

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