KG
11366
v.607

1883phar.proj.0011.

Zone Star
Observations and Reductions
From Nov. 17 1883 to Jan. 26 1884
C. 45

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1883phae.proj.1611.

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1883phae.proj.1611

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1883phae.proj.1611.

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1883phae.proj.1611:

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1883phae.proj.1611.

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1883phae.proj.1611.

Zone observations from Nov 17, 1883 to Jan 26 1884

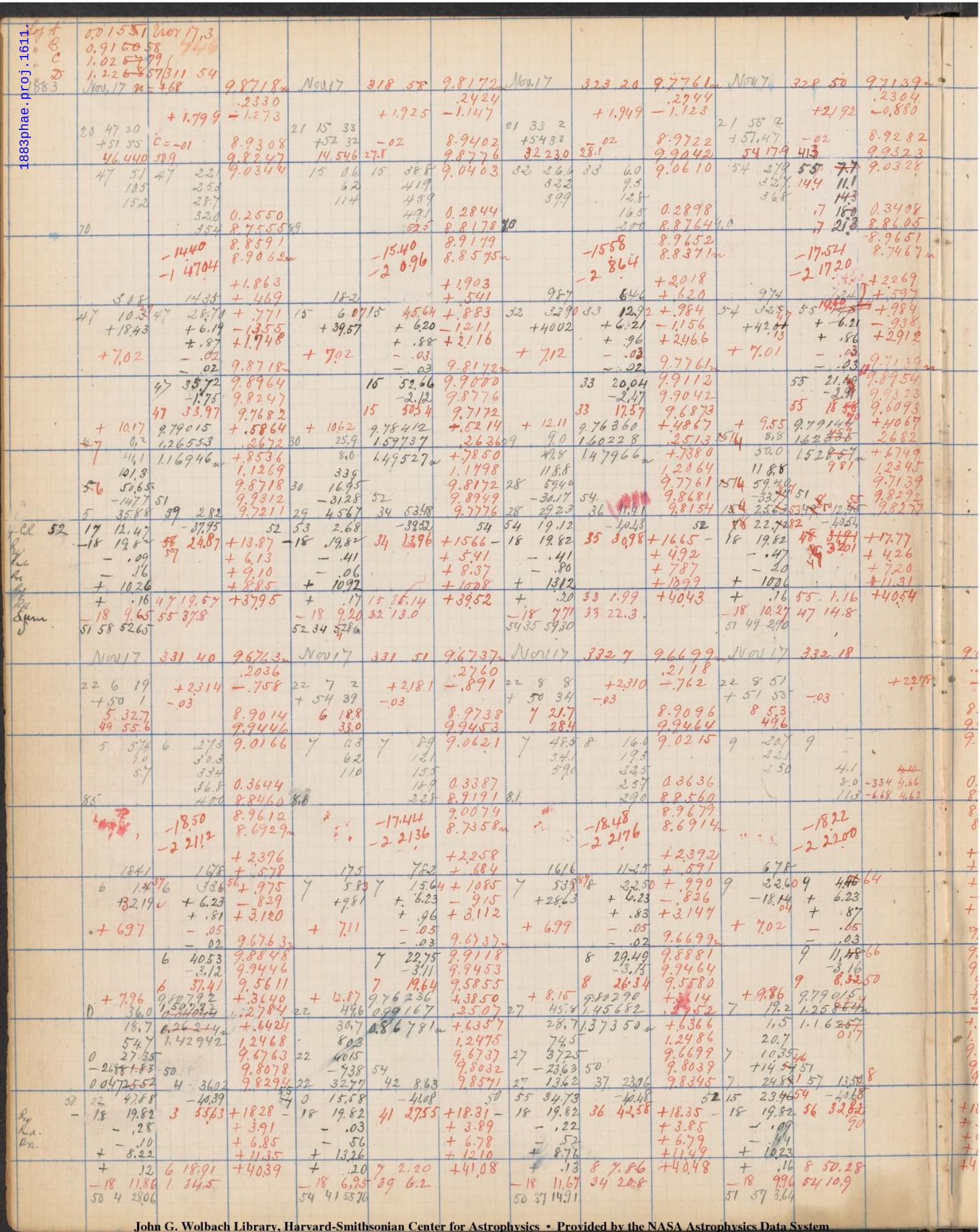
Thread Intervals

50°	+3.205
51	3.273
52	3.346
53	3.423
54	3.505
55°	+3.592

log 15 (sin i = 0.11378 m applied to Circle Readings

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1883phae.proj.1611.



John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1883phae.proj.1611.

746

Nov 17 329 3 9.7112 Nov 17 330 44 9.6892 Nov 17 330 50 9.6878 Nov 17 331 3 9.6849

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1883phae.proj.1611.

1883	Nov. 17	333 52	9.4439	Nov 17	334 6	9.6403	Nov 17	334 40	9.6313	Nov 17	334 50	9.6286
			.2023			.2524			.2752			.2750
	22 15 6	+2.370	− .702	22 16 1	+2.291	− .781	22 18 18	+2.266	− .806	22 18 58	+2.271	− .801
	+49 57	−.03		+53 9	−.03		+54 36	−.03		+54 34	−.03	
	14 185		8.9001	15 15.5		8.9502	17 330		8.9730	18 115		8.9728
	509		9.9532	3.4		9.9540	298		9.9561	284		9.9567
	14 59.7	15 15.0	9.0158	15 51.0	16 9.0	9.0466	17 45.4	18 24.5	9.0615	18 55.0	19 4.7	9.0614
	6.3	18.2		56.1	12.2		51.1	28.0		1.9	8.0	
	11.3	21.5		1.1	15.6		56.2	31.5		8.4	11.5	
		24.6	0.3748		19.2	0.3600		35.4	0.3553		15.0	0.3562
8.9		27.8	8.8533	9.0	23.6	8.9042	8.0	38.8	8.9291		18.9	8.9295
			8.9690			9.0006			9.0176			9.0181
		−18.96	8.6597		−18.32	8.6869		−18.11	8.6928		−18.16	8.6900
		−2.2400			−2.2424			−2.2496			−2.2512	
			+2.454			+2.372			+2.346			+2.351
	1973	1071	+.588	1652	786	+.661	1527	1582	+.700	1853	581	+.700
	15 5.8	15 21.4	+.993	15 56.07	16 15.72	+1.068	17 30.5	18 31.64	+1.110	19 1.87	19 11.6	+1.112
	77	2										
	+15.65	+ 6.23	− .768	+19.65	+ 6.23	− .818	50.90	+ 6.23	− .829	+9.85	+ 6.23	− .824
		+ .81	+ 3.264		+ .91	+3.283	+40.74	+ .96	+3.327		+ .96	+3.339
	+6.97	− .05		+ 7.06	− .05		+ 7.12	− .05		+ 7.11	− .05	
		− .02	9.6439		− .03	9.6403		− .02	9.6313		− .03	9.6286
		15 28.39	9.8843		16 22.78	9.9036		18 38.76	9.9115		19 18.73	9.9114
		−3.27	9.9532		−3.28	9.9540		−3.33	9.9561		−3.34	9.9567
		15 25.12	9.5282		16 19.50	9.9439		18 35.43	9.9428		19 15.39	9.9400
5	+8.17	9.80852	+.3374	+ 11.23	9.77795	+.3499	+ 12.68	9.76289	+.3490	+ 12.86	9.76324	+.3467
4	0.0	1.19451	.2789	52 22.1	1.29336	.2598	20 10.1	1.61002	.2510	27 23.0	0.99344	.2511
	43.0	1.1 1681	+.6163	4.0	1.18509	+.6097	50.2	1.48669	+.6000	3.9	0.87046	+.5978
	103.0		1.2554	26.1		1.2562	0.3		1.2583	269		1.2589
4	51.50		9.6439	52 13.05		9.6403	26 015		9.6313	27 1345		9.6286
	−13.09	50	0.7898	−1531	53	9.7851	−3067	54	9.7782	−7.42	54	9.7766
3	38.41	49 0	9.8375	51 57.74	12 42.02	9.8576	25 2948	39 11.78	9.8676	27 6.03	37 3536	9.8681
29	19.18 9.94	39 58.29		53	30 50.61		54	57 18.87		54	55 42.32	
	18 19.82	−4041		30 50.61	− 40.89				−41.09			−41.08
	− .07	59 17.88	+.1864 −	18 19.82	12 4.13	+.1868 −	18 19.82	38 30.64	+.1877 −	18 19.82	36 54.28	+.1879
	− .00 46		+.363	− .10		+.360	− .45		+.352	− .03		+.350
	+ 8.12		+ 6.57	− .44		+ 6.50	− .20		+ 6.40	− .44		+ 6.38
	+ 1.2		+.1157	+ .1160		+.1211	+ .1313		+.1240	+ .1313		+.1241
	1185	15 6.16	+.4041	+ .17	16 1.18	+.4089	+ .20	18 17.32	+.4109	+ .20	18 57.23	+.4108
	−18 1241	56 53.9		− 18 8.59	9 369		− 18 7.14	36 5.7		− 18 6.96	34 29.2	
	49 59 5012			53 17½ 30.79			54 38 59.05			54 37 22.50		
	Nov 17	0 24	7.8439	Nov 17	0 33	7.9822	Nov 17	1 58	8.5355	Nov 17	2 11	8.5809
			.2471			.2474			.2162			.2702
	0 1 8	+3.084	+.012	0 1 42	+3.089	+.017	0 7 21	+3.128	+.056	0 8 12	+3.143	+.071
	+52 50	−.04		+52 50	−.04		+50 51	−.04		+54 17	−.04	
	6.6		8.9449	0 403		8.9452	6 18.7		8.9140	7 9.5		8.9680
	329		00000	437		00000	443		9.9997	101		9.9997
	49.6	1 24.1	9.0433	1 46.2	1 58.0	9.0434	7 14.4	7 39.1	9.0241	8 9.4	8 30.6	9.0582
	55.1	27.5		51.3	1.7		20.0	42.4		13.5	33.7	
	0.5	31.0		56.0	5.0		26.0	45.7		20.4	37.0	
		34.7	0.4891		8.5	0.4898		49.0	0.4953		40.7	0.4973
6.1		37.9	8.9449	8.9	11.8	8.9452	9.9	52.0	8.9137	8.2	44.3	8.9677
			9.0433			9.0434			9.0238			9.0579
		−24.66	6.8872		−24.68	7.0256		−25.01	7.5596		−25.12	7.6391
		−2.4040			−2.4040			−2.4032			−2.4032	
			+3.196			+3.201			+3.242			+3.257
	1652	1582	+.726	1535	3250	+.726	604	2382	+.676	433	1863	+.765
	0 55.07	3 1.07	+.1172	1 51.2	17 2 35.00	+.1172	7 20.13	7 45.64	+.1121	8 14.43	8 37.26	+.1212
	+36.00	+ 6.28	+.013	+13.83	+ 6.28	+.018	+25.51	+ 6.28	+.061	+22.83	+ 6.28	+.073
		+ .90	+5.107		+ .90	+5.117		+ .84	+5.100		+ .95	+5.307
	+ 7.09	− .07		+ 7.08	− .07		+ 7.03	− .07		+ 7.13	− .07	
	12	− .02	7.8439		− .03	7.9822		− .02	8.5355		− .03	8.5809
		1 38.16	9.9017		2 12.08	9.9018		7 52.67	9.8899		8 44.39	9.9098
		−5.11	0.0000		−5.12	0.0000		−5.16	9.9997		−5.31	9.9997
		1 33.05	7.7856		2 6.96	7.8840		7 47.51	8.4254		8 39.08	8.9907
	+ 10.74	9.78113	−.0056	+ 11.17	9.78113	−.0077	+ 8.95	9.80027	−.0266	+ 12.00	9.76625	−.0310
	12 74	1.55630	.2618	11 24.7	1.14082	.2617	10 49.5	1.40641	.2736	44 45.0	1.35851	.2529
		49.5	+.2562	6.1	1.03573	+.2540	31.9	1.32076	+.2470	27.6	1.23854	+.2219
		1.4521	1.3020	30.8		1.3020	8.4		1.3017	72.6		1.3017
	11	58.65	7.8439	11 15.40		7.9822	10 40.70		8.5355	44 36.30		8.5809
	− 28.26	+52	0.4086	−10.86	52	9.4048	− 20.93	50	9.3927	−17.32	54	9.3462
	11 30.39	53 8.88	9.9017	11 4.54	53 35.16	9.9018	10 19.77	54 17.41	9.8896	44 18.98	20 21.55	9.9095
52	11 17.96	− 3687	52	11 43.81	− 36.83	52	12 28.58	− 36.77	54	38 29.37	− 3649	
−	18 19.82	52 32.01	+.2077	18 19.82	52 58.33	+.2077	18 19.82	53 41.54	+.2076	18 19.82	19 45.06	+.2076
	− .34		− .06	− .05		− .08	− .18		− .28	− .14		− .31
	− .40		+2.72	− .26		+2.69	− .14		+2.62	− .92		+2.35
	+ 11.31		+13.44	+ 11.31		+13.45	+ 9.13		+13.07	+ 12.86		+13.69
	+ .17	1 8.39	+.3687	+ .17	1 42.28	+.3683	+ .14	7 22.56	+.3617	+ .20	8 13.96	+.3649
	−18 9.08	49 51.6		− 18 8.65	50 17.9		− 18 10.84	51 1.2		− 18 7.82	17 4.7	
51	52 58.14		51	53 23.99		50	54 8.76		54	20 9.55		

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1883phae.proj.1611.

746

Nov 17 335 11 9.6230 Nov 17 335 27 9.6186 Nov 17 335 41 9.6147 Nov 17 336 5 9.6079

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1883phae.proj.1611.

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

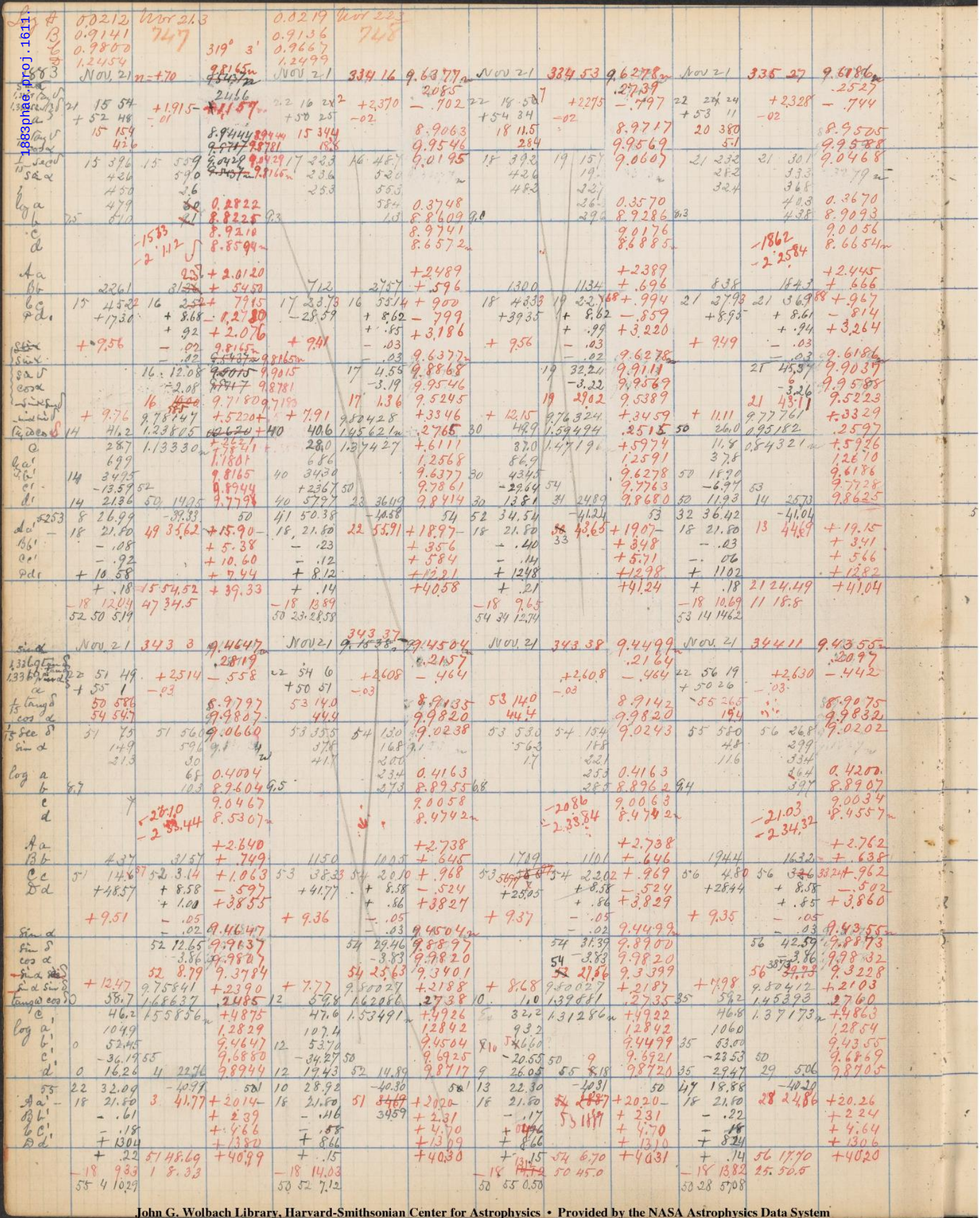
1883phae.proj.1611.

7246

Nov 17	12 47	9.3449	Nov 17	12 55	9.3493	Nov 17	13 14	9.3597	Nov 17	13 34	9.3703
		2844			.2617			.2803			.2061
	+.3498	+.426	0 57 2	+3.480	+.408	0 52 23	+3.509	+.437	0 53 42	+3.449	+.377
	−.05		+53 45	−.05		+54 55	−.05		+ 50 12	−.05	
49 214		8.9822	.49 526		8.9595	51 132		8.9781	52 337		8.9039
		9.9891	385		9.9889	484		9.9883	87		9.9877
50 157	50 528	9.0677	51 507	51	9.0526	52 298	52 435	9.0649	53 383	54 2.0	9.0181
253	563		517			314	472		426	5.0	
330	0.2		524	29.70 29.7		330	508		476	6.3	
	37	0.5438		3012 336	0.5416		544	0.5452		114	0.5677
94	72	8.9713		29.54 36	8.9484		580	8.9664		148	8.8916
740		9.0568			9.0415			9.0532			9.0058
	−27.97	8.4126		−27.81	8.4019		−28.05	8.4246		−27.58	8.3884
	−2.3648			−2.3640			−2.3624			−2.3600	
		+3.625			+3.607			+3.637			+3.574
740	3002	+.772	1551		+.732	942	2539	+.763	1285	415	+.642
50 2464	51 0.04	+12.09	51 51.70	51 29.79	+1.167	52 31.40	52 5.08	+1.199	53 42.83	54 8.30	+1.075
+35.37	+ 6.30	+.436	−21.91	+ 6.30	+.425	+19.38	+ 6.30	+.448	+25.47	+ 6.30	+.412
	+ .98	+6.042		+ .93	+5.931		+ .97	+6.047		+ .81	+5.703
+ 7.17	− .09		+ 7.12	− .08		+ 7.14	− .09		+ 7.00	− .08	
	− .02	9.3449		− .03	9.3493		− .02	9.3597		− .03	9.3703
51 7.21		9.9145	51 3591		9.9068		52 12.94	9.9132		54 15.30	9.8858
− 604		9.9891	36		9.9889		57.94	9.9883		− 5.70	9.9877
51 1.17		9.2594	− 5.93		9.2561		− 605	9.2729		54 9.60	9.2561
+ 13.45	9.75660	− .1817	51 3098	+ 12.14	−.1803	+ 13.37	52 51.89	−.1875	+ 7.43	9.80625	−.1803
51 38.2	1.54864	.2475	4.77181	16 16.7	.2562	7 6.2	975949	.2491	49 39.8	1.40603	.2774
39.4	1.41902	+.0658	1.34064	1.2	+.0759	48.9	1.28735	+.0616	23.2	1.32606	+.0971
97.6		1.2911	1.22623	19.9	1.2909	11.51	1.16062	1.2903	6.30		1.2897
51 48.80		9.3449		16 9.95	9.3493	6 5.75		9.3597	49 31.50		9.3703
−.2624	55 4	8.8182	+ 16.83	53	8.8802	− 1.448	54 5.883	8.7896	− 21.19	50	8.9872
57 22.56	13 19.82	9.9036	16 26.78	48 13.89	9.8957	6 43.07	57 5.778	9.9015	49 10.31	15 25.65	9.8735
55 31 25.79	− 3264	5.54	6 21.57	− 3247	5.54	16 5.28	− 32.42	50	33 38.04	− 31.89	
− 18 19.82	12 46.78	+2026 −	18 19.82	47 41.42	+2025 −	18 19.82	57 26.41	+2022 −	18 19.82	14 53.76	+ 20.19
− .32		− 1.82	− .13		− 1.84	− .09		− 1.89	− .17		− 1.93
− .36		+ .70	− .24		+ .80	− 4072		+ .65	− .90		+ 1.03
+ .1392		+13.50	+ 1232		+ 1326	+ 1365		+ 1344	+ 8.38		+ 12.60
+ .21	50 33.20	+32.64	+ .19	51 3.14	+32.47	+ .21	52 23.84	+32.42	+ .12	53 42.02	+31.89
− 18 6.87	10 10.3		− 18 7.68	45 5.0		− 18 6.15	54 50.2		− 18 12.39	12 17.8	
55 13 5.97			5348 1.75			54 57 45.46			50 15 18.22		

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

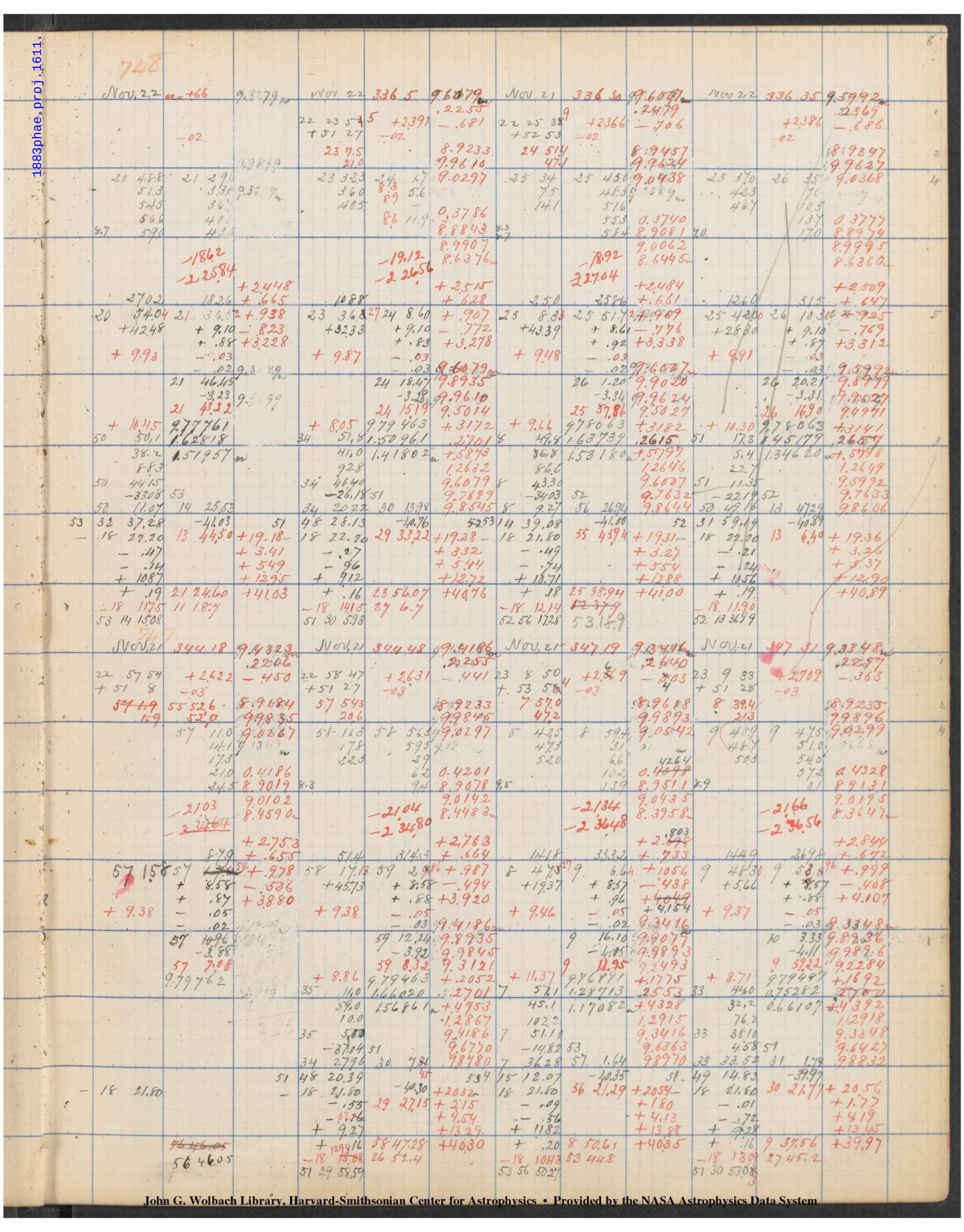
1883phae.proj.1611.



John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1883phae, proj. 1611.

748



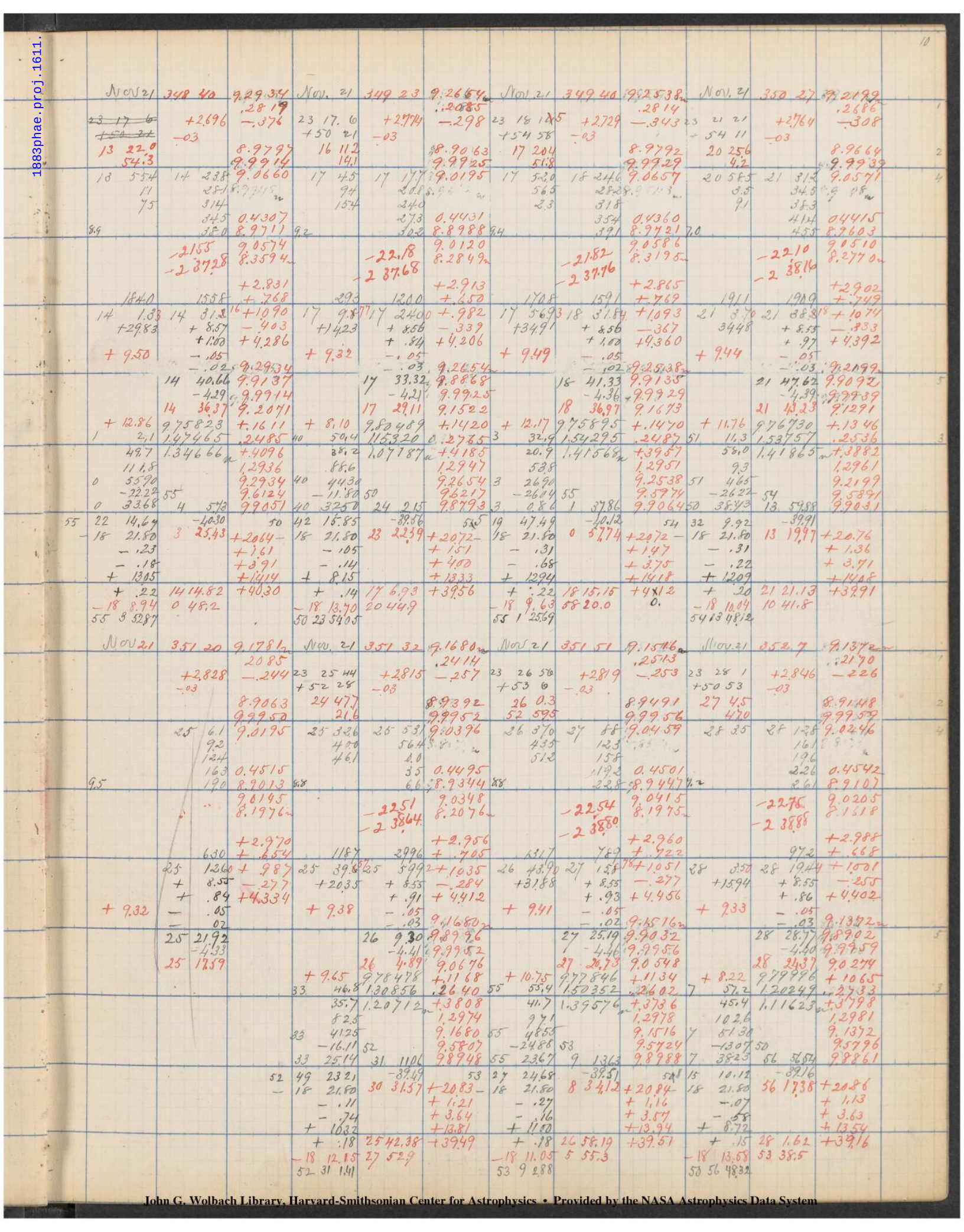
John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1883phae.proj.1611.

747

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

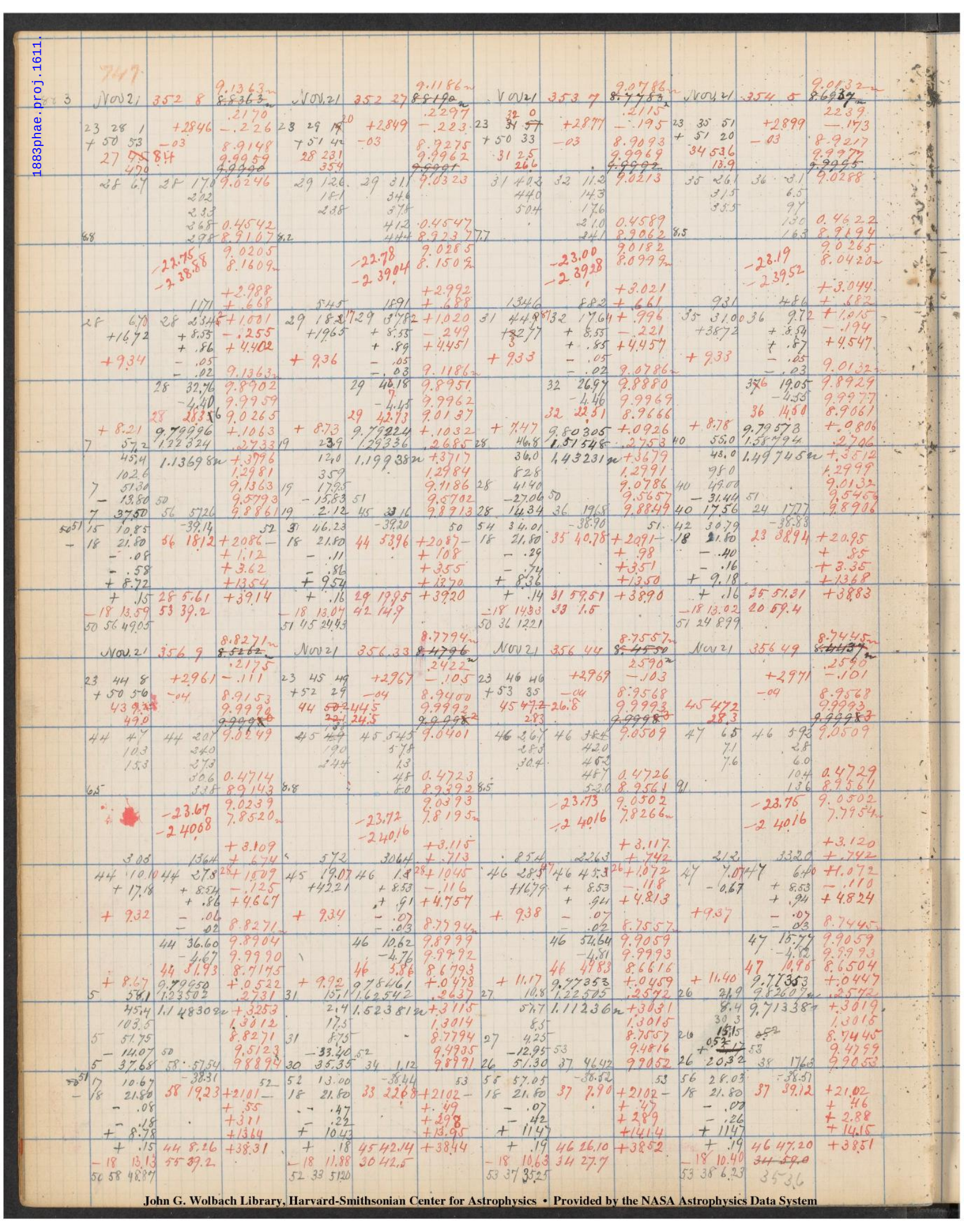
1883phae.proj.1611.



John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

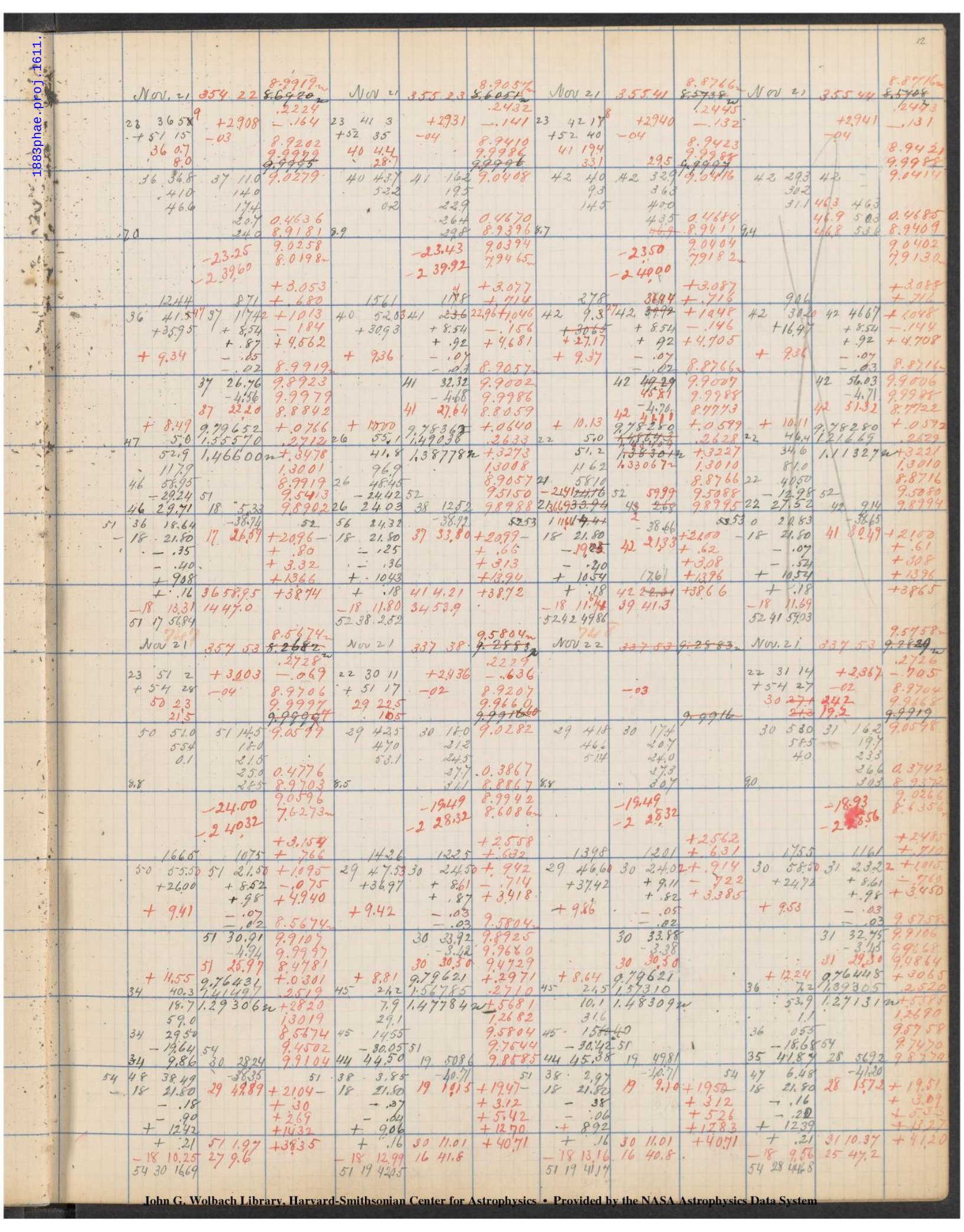
1883phae.proj.1611.

747



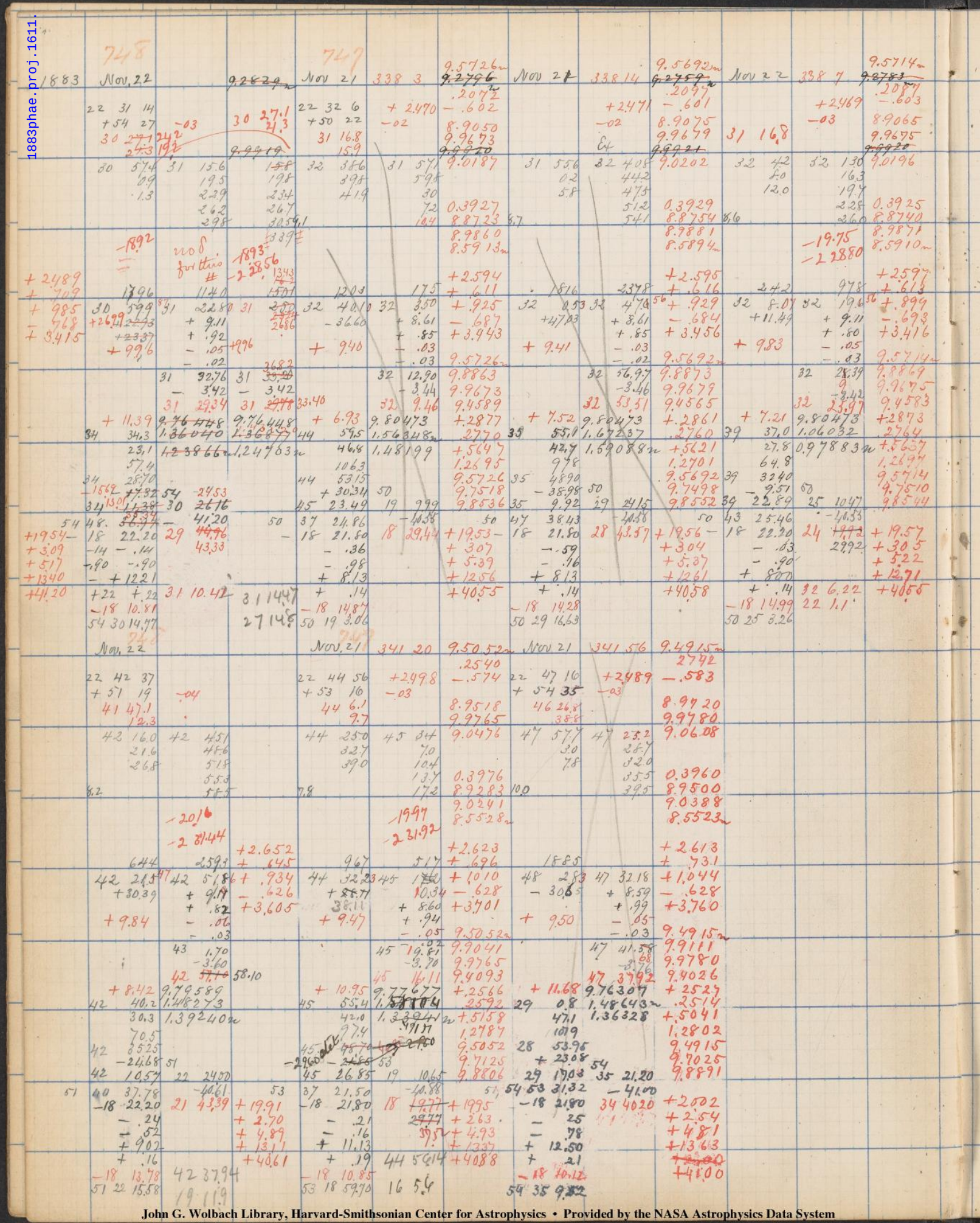
John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1883phae.proj.1611.



John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1883phae.proj.1611.



John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1983phae.proj.1611.

747

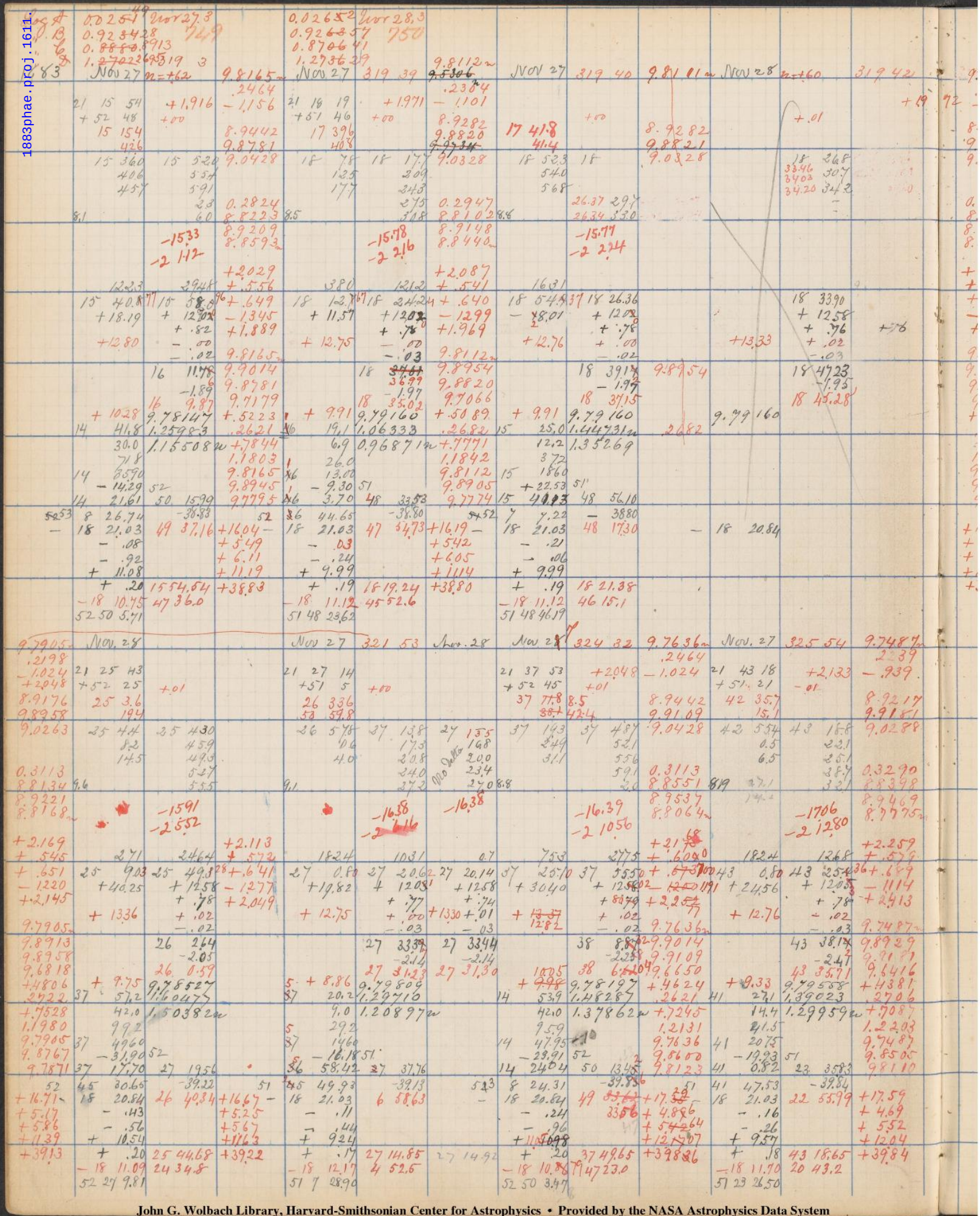
Nov. 21

748

Nov. 22

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1883phae.proj.1611.



John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1883phae.proj.1611.

749

750

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1883phae.proj.1611.

750

1883 Nov 28

749

Nov. 27

Nov 28

Nov 27

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1883phae.proj 1611.

729

Nov. 27 328 12 9.7218

750

Nov. 28 328 25 9.7191

Nov. 27 329 2 9.7114

Nov. 27 329 3 9.7112

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1883phae.proj.1611.

750

749

Nov 28

Nov 27

Nov 28

Nov 27

Nov 28

Nov 27

Nov 28

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1883phae.proj.1611..

750

Nov. 28 9.3881

+.00 9.9866

6 11.3 6 30.0
154 33.4
21.3 36.5
39.7
4.0 43.2

-18.18
-2 22,120
+2.413
460 1828 +.624

6 16.00 6 36.6 56 +.707
+20.56 +12.59 -.954
+.76 +2.790
+13.33 -.00
-.02

6 49.89
-2.79
6 47.10
+8.94 9.79383
29 13.7 1.31302

59.2 1,22063 n
129
29 645
-1662 57
28 4983 35 4662

51 53 58.52 -4048 58
-18 20.84 35 6.14 +18.75-
.12 +.40
-.82 +4.80
+.97 +12.93

+.18 6 28.92 +40.48
-18 11.90 32 44.9
51 35 37.68

Nov. 28 9.3759

+.00 9.9874

9 16.2 9 41.0
23.7 44.4
28.3 48.0
51.5
8.8 54.8

-17.99
-2 2224
682 239.7

9 22.73 9 47.94
+2.521 +12.60
+.80
+13.38 -.02
-.02

10 1.32
-2.83
9 58.49
+10.97 9.77846
57 22.0 1.40157

7.0 1.29381 n
29.0
57 .1450
-19.67 53
56 54.83 7 43.65

53 25 53.52 - 40.79 584
-18 20.84 7 2.86
-.16
-.44
+11.37

+.20 9 40.50
-18 9.87 4 40.6
53 7 32.68

749

Nov. 27 33.1 5.8 9.6733 9.3854

22 7 18 +2.301 -.771
+5 0 41 -.01 8.9114
6 2.48 9.9455
35.6 9.9668

7 41 7 13.3 9.0225
15.1 16.4
21.0 19.4
22.7 0.3619
8.4 25.9 8.8569

-18.42
-2 21.44
+2.437
442 977 +.602

7 14.73 7 19.54 +.723
+4.81 +12.07 -.923
+.76 +2.839
+12.76 -.02
-.03

7 32.38 9.8889
-2.84 9.9455
7 29.46 9.5622
+8.94 9.80182 +.3649
20. 20.2 0.68215 .2746

8.0 0.59775 m +.6395
28.2 1.2477
20 14.10 9.6733
-39 32.60 50 4 26.12 9.8058
20 49 34.50 45 4.76 9.8344
8.2 15.14 38.21 40.36 58

18 21.03 43 45.76 +18.73-
-.01 +3.95
-.04 +4.98
+.883 +12.70

+.16 7 11.04 +4.036
-18 12.09 41 24.3
50 44 17.18

Nov. 27 33.2 5.2 9.6590 9.3707

22 11 6 +2.234 -.838
+5 8 55 -.01 8.9621
10 21.4 9.4994
48.7 9.9877

10 44.2 11 7.8 9.0543
50.4 61.2
56.8 14.8
18.2 0.3491
8.2 21.7 8.9115

-17.86
-2 22.72
+2.366
1514 787 +.683

10 50.5 47 11 14.4 +.785
+24.27 +12.08 -.961
+.85 +2.873
+12.86 -.02
-.03

11 27.62 9.9078
-2.87 9.9494
11 24.73 9.5668
+12.01 9.77009 +.3688
7 16.9 1.38507 .2552

5.7 1.26894 m +.6240
22.6 1.2516
7 11.30 9.6590
-18.54 53 9.7952
6 52.73 57 46.60 9.8572

15 55.62 -.4097 584
18 21.03 57 5.73 +18.90-
.15 5.63 +3.82
-.44 +4.86
+12.38 +13.39

+.22 11 6.87 +4.097
-18 9.02 54 42.9
53 57 34.59

Nov. 28 9.3854

+.00 9.9868

7 3.2 7 12.5 9.0225
5.6 15.7
8.2 19.0
22.2
8.2 25.5

-18.42
-2 21.44
+2.444
170 94.9 +.606

7 5.7 7 18.8 98 +.695
+13.31 +12.59 -.930
+1.73 +2.815
+13.30 -.00
-.02

7 32.28
-2.82
7 29.46
+8.78 9.80182
20 28.0 1.12418

13.6 1.03978 m
41.6
20 20.80
-10.96 50 4
9.84 45 26.45

2 38.51 -.4035 52
18 20.84 43 46.10 +18.79
+3.97
+4.79
+12.80

+.16 7 11.04 +4.035
-18 12.06 41 24.7
50 44 17.67

Nov. 28 9.3707

22 12 25 +2.347 -.725
+5 0 11 -.01 8.9037
11 38.4 9.9506
5.0 9.9880

10 34.2 11 7.0 +.755
40.0 10.3 -.969
45.5 13.6 +2.846
17.3
8.5 21.0

-17.86
-2 22.72
+2.373
1197 692 +.687

10 39.90 11 13.84
+33.94 +12.60
+.82
+13.40 -.00
-.02

11 27.24
-2.85
11 24.39
+11.72 9.77009
7 27.0 1.53041

12.2 1.41458 m
39.2
19.60
7 -2.598 53
6 53.62 57 45.61

15 54.73 -.4096 50
18 20.84 57 4.63 +18.96-
-.30 +3.84
-.46 +4.67
+12.25 +13.49

+.23 11 6.53 +4.096
-18 9.12 54 41.9
53 57 33.89

Nov. 27 33.2 12.4 9.6692 9.3810

22 8 20 +2.263 -.809
+5 2 18 -.01 8.9366
7 34.5 9.9466
12.5 9.9871

7 56.6 8 2.16 9.0380
33.3 25.1
.8.8 28.7
31.8 0.3547
8.4 35.4 8.8832

8.9846
-18.10 8.7072 m
-2 21.84
+2.397
1887 1426 +.640

8 2.90 8 28.52 +.751
+25.62 +12.08 -.948
+.80 +2.840
+12.80 -.02
-.03

8 41.34 9.8986
-2.84 9.9466
8 38.48 9.5478
+9.83 9.78642 +.3697
43 52.9 1.40858 .2650

41.2 1.30878 m +.6347
94.1 1.2488
43 47.05 9.6692
-20.36 52 10 9.8026
43 26.69 21 8.46 9.8452

39 21.66 -.4065
18 21.03 20 19.41 +18.78
-.18 29.81 +3.91
-.76 +4.94
+.165.7 +1.302

+.20 8 20.38 +.4065
-18 11.20 18 8.0
52 21 0.63

Nov. 27 33.3 11 9.6543 9.3653

22 12 25 +2.347 -.725
+5 0 11 -.01 8.9037
11 38.4 9.9506
5.0 9.9880

11 55.5 12 35.6 9.0179
1.5 28.2
6.3 31.7
34.9 0.3705
6.5 38.2 8.8543
41.4 8.9685

-18.78 8.6722 m
-2 23.12
+2.485
1833 1442 +.579

12 1.10 12 37.64 +.724
+30.57 +12.08 -.874
33.78 +.74 +2.934
+12.75 -.02
-.03

12 27.93 9.8857
-2.93 9.9506
+7.94 12 4.46 4.470 9.5400
+8.69 9.80641 +.3468
50 59.0 1.45486 .2775

47.7 1.40506 m +.6243
10.7 1.44885 m 1.2528
50 53.35 9.6543
-25.41 50 10.02 9.7954
50 27.94 14 7.38 9.8363

32 20.41 -.4035
18 21.03 13 29.67 +18.95
-31.25 +3.78
-.18 +4.86
+.829 +1.276

+.14 12 25.92 +40.35
-18 13.03 11 6.6
50 13 57.38

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1883phae.proj:1611.

750 — Nov. 28

749 — Nov 27

Nov. 28

Nov. 27

Nov 28

Nov 27

Nov. 28

Nov. 27

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

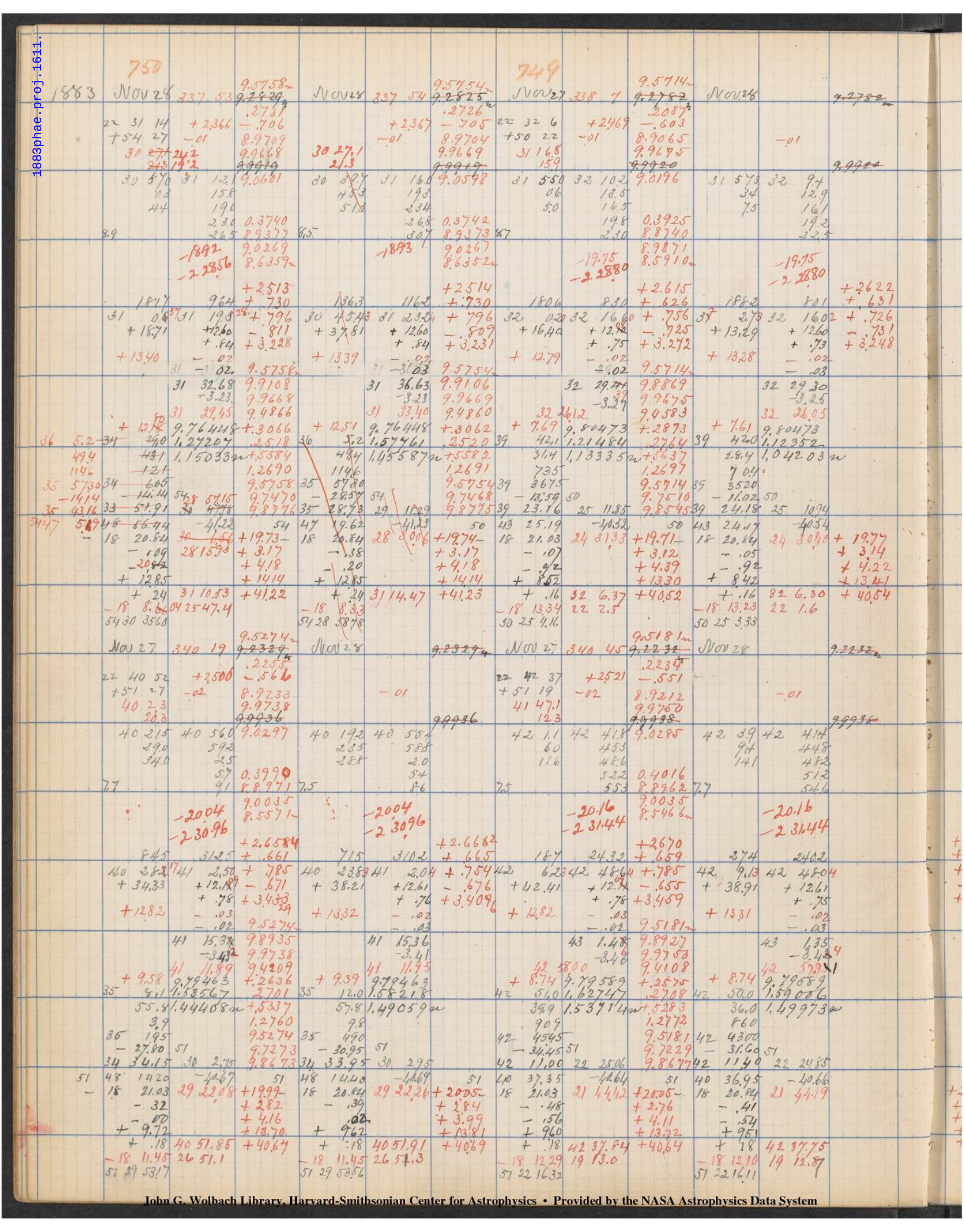
1883phae.proj.1611.

750

749

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1883phae.proj.1611.



1883 NOV 28 ... NOV 28 ... NOV 27 ... NOV 28 ... NOV 27 ... NOV 28 ...

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1883phae.proj.1611.

749

Nov 27

338 38

9.5647

.2495

−.652

8.9473

9.9686

9.0448

0.3892

8.9159

9.0134

8.6095

−19.35

−2 29.20

+2.595

+.690

1803

1864

33 0.10

+ 37.18

+ 12.86

33 37.8

+ 12.08

+ .82

− .02

− .02

+.803

−.757

+3.331

9.5647

9.9025

9.9686

9.4672

+.2932

.2609

+.5541

1,2708

9.5647

9.7436

9.8711

33 50.18

−3.33

33 46.81

9.77963

1.57031

1,46372

+ 10.65

2 49.2

37.9

8.71

2 43.55

−29.09 53

2 14.46

2 23.51

−40.96

1 4255

20 33.89

18 21.03

− .36

− .64

+ 11.35

+ .20

18 10.38

53 2 12.8

+19.76

+.307

+.431

+13.82

+40.96

9.5052

9.2104

Nov 27

341 20

.2540

−.574

8.9518

9.9765

9.9942

22 44 53.6

+53 10

44 6.1

9.7

+2498

−.02

44 17.3

3.28

28.4

44 6.98

33

6.7

10.3

136

7.7

9.0476

0.3976

8.9283

9.0241

8.5528

−19.97

−2 31.92

+2.645

+.710

+2.678

+.664

680

3337

+.754

−.660

+3.436

44 22.83

+ 43.91

+ 12.87

44 6.74

5 + 12.02

+ .83

− .03

− .02

+.823

−.664

+3.514

9.5052

45 19.63

−3.51

45 16.10

9.77677

1.64256

9.9041

9.9765

9.4093

+.2566

.2592

11.20

0.9

46

48.1

1090

45 5450

− 34.13 53

45 20.37

19 18.15

1,53311

+51.58

1,2787

9.5052

9.7125

9.8806

53 37 27.98

+2.011 − 18 21.03

+.278 − .51

+3.95 − .18

+.382 + 1168

+40.66 + .21

− 18 9.83

53 19 6.95

−40.95

18 37.20

+20.12

+.268

+4.02

+.413

+40.95

44 56.13

16 5.3

750

Nov 28

9.2716

−.01

9.9923

33 48

14.3

20.6

33 31.0

33.3

36.7

39.9

43.5

8.8

−19.35

−2 29.20

+2.603

+.694

+.772

−.763

+3.306

437

1834

33 14.85

+ 22.11

+ 13.35

33 36.76

+12.60

+.80

− .02

− .03

+ 10.80

2 40.0

25.8

6.58

3290

− 17.30 53

2 15.60

1,23800

2 22.71

−40.99

20 32.75

18 20.84

− .13

− .50

+ 11.23

+ .20

18 10.04

53 2 12.91

+1.72

+1982

+.309

+.415

+13.93

+40.99

Nov 28

9.2100

.2406

−.545

8.9384

9.9776

9.9944

44 20.3

24.0

30.0

44 5.93

26

6.0

9.5

13.0

8.0

9.0391

0.4026

8.9160

9.0167

8.5349

−19.97

−2 31.92

+2.653

+.714

743

3304

44 24.8

+ 41.31

+ 13.36

45 6.08

+12.61

+.80

− .02

− .03

+.791

−.669

+3.489

45 19.44

−3.49

43 15.95

9.77677

1.61606

+ 11.14

46 0.0

45.0

1050

45 5250

− 32.11

45 20.84

53

19 18.26

−40.98

18 37.28

52

+2018

+2.70

+3.86

+14.24

+40.98

37 27.96

18 20.84

− .45

− .18

+ 1156

+ .21

− 18 9.70

53 19 7.12

44 55.98

16 5.4

Nov 27

338 35

9.5625

9.2644

.2755

−.689

8.9733

9.9689

9.9924

22 33 58

+54 37

33 10.8

30.4

+2.383

−.01

34 18.8

21.3

24.5

34 0.0

33

6.8

10.4

14.0

8.6

−1906

−2 29.28

646

345

34 21.53

− 14.63

+ 12.91

34 6.98

+ 12.78

+.87

− .62

− .02

9.9116

9.9689

9.4741

+.2979

.2509

+.5488

1.2711

9.5625

9.7394

9.8805

+19.77

+3.06

+4.27

+14.13

+41.23

34 19.83

−3.31

34 16.52

9.76271

1.16524

+ 12.52

24 22.48

11.1

339

1.04173

24 16.95

+ 11.01 54

24 27.96

40 11.88

−41.23

54

58 20.39

18 21.03

− .06

− .86

+ 13.21

+ .23

−18 8.51

54 39 59.36

33 57.44

37 1.4

9.4958

9.2002

.2406

−.545

8.9384

9.9776

9.9945

22 46 38

+52 24

45 48.5

18.1

+2527

−.02

46 25.3

27.5

29.0

46 4.19

45.0

48.4

51.8

55.0

9.0391

0.4026

8.9160

9.0167

8.5349

−20.21

−2 32.32

+2.676

+.690

818

2421

46 27.87

+ 21.15

+ 12.86

46 4.842

+ 12.72

+.81

− .03

− .02

+.809

−.637

+3.588

9.4958

47 1.30

−3.54

46 57.74

9.78543

1.32531

+ 10.37

37 21.2

9.1

303

1515

− 16.77 52

36 58.38

27 39.31

−40.79

1,22452

+5127

1,2798

9.4958

9.7099

9.8769

45 49.97

18 21.03

− .12

− .46

+ 10.75

+ .20

18 10.66

52 27 28.94

26 58.52

+2017

+2.62

+3.99

+14.01

+40.79

46 37.53

24 26.2

Nov 28

9.2641

9.9924

34 11.7

19.5

26.4

34 1920

− 12.66

+ 13.40

34 6.54

+ 12.60

+.85

− .02

− .03

9.0617

0.3771

8.9422

9.0306

8.6242

+.2523

+.733

+.835

−.783

+3.308

9.5625

576

8.3

−1906

−2 29.28

3327

+2.531

+.738

+.803

−.789

+3.283

34 19.94

−3.28

34 16.66

9.76271

1.10243

+ 12.41

24 25.2

10.5

35.7

24 17.85

+ 9.53 54

24 27.38

40 12.54

0.97892

−41.26

58 20.97

18 20.84

− .05

− .86

+ 13.08

+ .24

−18 8.43

54 40 0.13

39 31.28

+1983

+3.08

+4.11

+14.24

+41.26

33 57.60

37.2 0

9.2000

(see end of book for Nov 28)

−.02

22 46

9.9945

46 25.3

27.5

29.0

46 4.37

46.9

50.0

53.6

57.0

46 27.8

+ 22.97

+ 12.85

46 50.24

+12.72

+.81

− .03

− .03

47 3.76

−3.54

46 59.55

9.78543

1.36116

+ 10.35

37 24.2

1,26037

37 17.15

52 8.93

27 3.73

36 58.94

45 49.41

18 21.03

− .14

− .46

+ 10.75

− .20

18 10.68

52 27 38.38

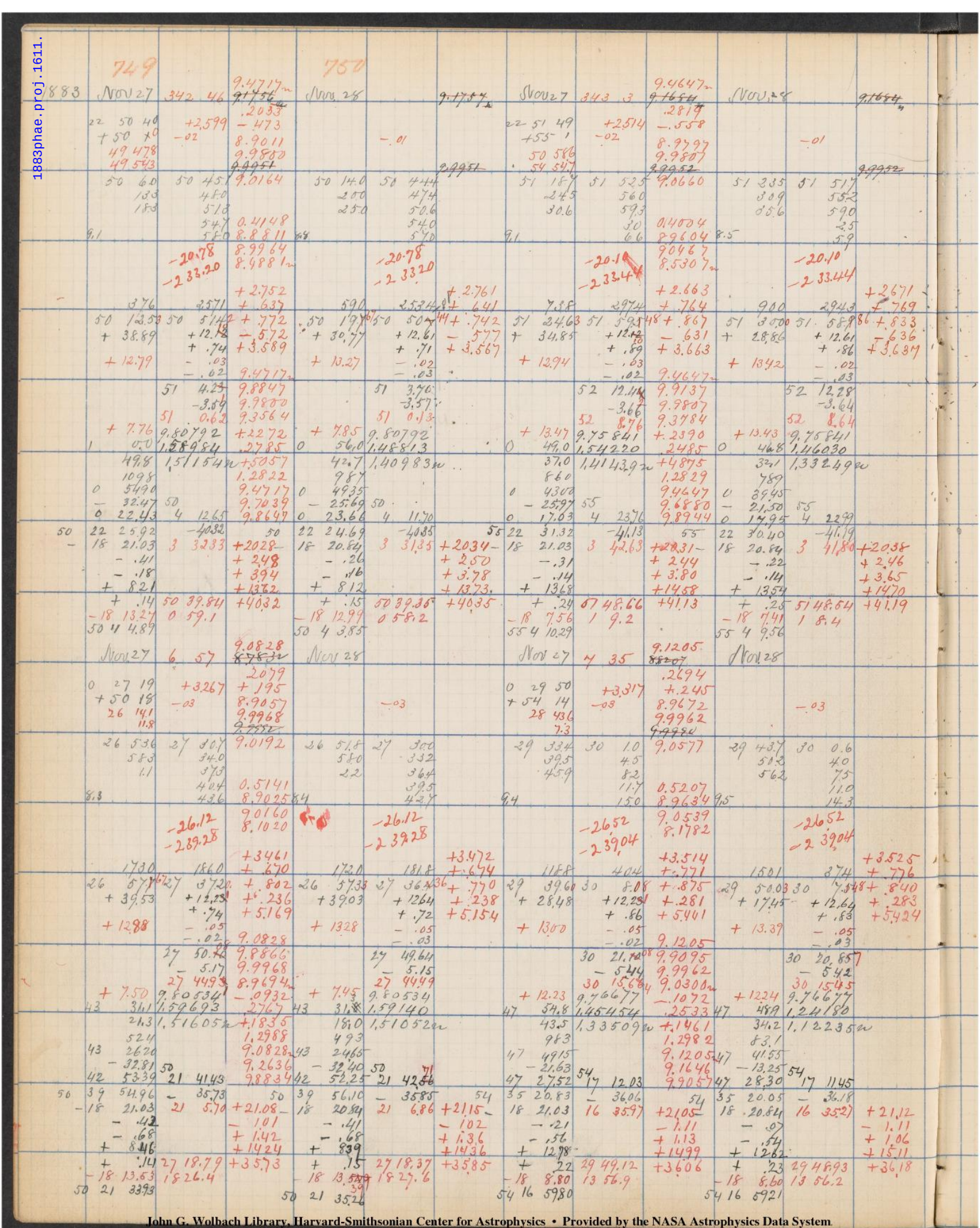
−40.79

26 57.94

46 39.34

24 25.6

1883phae.proj.1611.



John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1003phae.proj.1611.

749

750

Nov 27 | Nov 28 | Nov 27 | Nov 28

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1883phae.proj.1611.

749

1883 Nov 27 8 54

0 35 2	3353	9.1895	
+53 37	-.03	8.8896	
33 55.2		.2595	
30.4		+.281	
		8.9573	
		9.9947	
		9.9987	
34 53.7	35 15.0	9.0512	
57.0	18.5		
1.0	21.4		
	25.7	0.5254	
9.7	29.2	8.9520	9.4
		9.0459	
	-26.81	8.2407	
	-2 38.56		
		+3.552	
- 17.17	10.98	+.751	17.16
34 37.23	35 29.20	+.859	34 37.20
+ 24.73	+12.23	+ 3.24	+ 24.76
	+ .84	+5.486	
+ 12.98	- .05		+ 13.39
	- .02	9.1895	
	35 34.98	9.9061	
	- 5.49	9.9947	
	35 29.49	9.0956	
+ 11.20	9.77319	-.1246	+ 11.10
24 48.0	1.39322	.2570	24 57.0
3.70	1.28019	+.1324	3.71
8.50		1.2967	8.81
24 42.50		9.1895	24 44.05
- 19.06		9.1219	- 19.09
24 23.44	53 40 15.08	9.9008	24 24.96

53 58 24.91	- 35.53	53	58 23.39
- 18 21.03	39 39.55	+20.98	- 18 20.84
- .16		- 1.30	- .16
- .94		+ 102	- .94
+ 12.09		+1483	+ 1199
+ .21	35 2.64	+35.53	+ .21
-18 9.83	37 1.0		-18 9.71
53 40 3.88			53 40 2.55
		9.3046	
Nov 28	11 38	9.0058	Nov 27
		.2216	
0 45 54	+3.408	+.336	0 50 47
+51 12	-.03	8.9194	+ 55 9
41.67		9.9916	49 36.9
53		9.9978	55 2.4
45 37.6	46 12.8	9.0274	50 1.79
43.0	15.9		2.21
48.7	19.0		2.82
	22.3	0.5325	
8.9	25.8	8.9104	8.1
		9.0184	
	-27.24	8.3320	
	-2 37.12		
		+3.622	
12.93	9.58	+.687	6.88
45 43.10	46 19.2	16 +.774	50 22.93
+ 36.06	+ 12.65	+ .403	+ 44.29
	+ .74	+ 5.486	
+ 13.32	- .05		+ 13.02
	- .02	9.3046	
	46 32.48	9.8920	
	- 5.49	9.9910	
	46 26.99	9.1966	
+ 8.18	9.79699	-.1573	+ 12.95
49 59.7	1.55783	.2715	53 14.4
46.7	1.46780	+.1142	3.1
10.64		1.2930	17.5
49 53.70		9.3046	53 8.75
-29.36		9.0577	- 32.89
49 23.84	51 15 11.85	9.8830	52 35.86

61 33 24.51	- 34.36	55	30 12.49
- 18 20.84	14 37.49	+20.87	- 18 21.03
- .35		- 1.70	- .50
- .98		+ .85	- .62
+ 9.34		+14.34	+ 1383
+ .17	45 59.75	+34.36	+ .24
-18 12.66	12 0.4		-18 8.08
51 15 3.67			55 11 51.46

750

Nov 28

	-.03		
34 55.0	35 14.7		
56.7	18.5		
59.9	22.0		
	25.6		
	29.0		
	-26.81		
	-2 38.56		
		+3.564	
17.16	10.98	+.756	
34 57.20	35 29.20	+.825	
+ 24.76	+12.65	+ .327	
	+ .82	+5.472	
+ 13.39	- .05		
	- .03		
	35 35.35		
	- 5.47		
	35 29.88		
+ 11.10	9.77319		
24 57.0	1.39375		
3.71	1.28072		
8.81			
24 44.05			
- 19.09			
24 24.96	53 40 13.65		

58 23.39	- 35.66	54	
- 18 20.84	39 37.99	+2.105	
- .16		- 1.31	
- .94		+ .98	
+ 1199		+14.94	
+ .21	35 3.07	+35.66	
-18 9.71	36 59.4		
53 40 2.55			
		9.3466	
Nov 27	12 50	9.0058	
		.2841	
0 50 47	+3.999	+.427	
+ 55 9	-.04	8.9819	
49 36.9		9.9890	
55 2.4		9.9973	
50 1.79	50 59.7	9.0675	
2.21	3.6		
2.82	7.2		
	11.0	0.5439	
8.1	14.6	8.9709	
		9.0565	
	-27.97	8.4141	
	-2 36.56		
		+3.707	
6.88	33.61	+ .784	
50 22.93	51 7.22	+ .880	
+ 44.29	+12.25	+ .483	
	+ .89	+5.854	
+ 13.02	- .07		
	- .03	9.3466	
	51 20.28	9.9144	
	- 5.85	9.9890	
	51 14.39	9.2610	
+ 12.95	9.75696	-.1824	
53 14.4	1.64631	.2476	
3.1	1.51705	+.0652	
17.5		1.2910	
53 8.75		9.3466	
- 32.89		8.8142	
52 35.86	55 12 4.41	9.9034	

55			
30 11.81	- 34.26	55	
- 18 20.84	11 30.15	+20.71	
- .43		- 1.86	
- .62		+ .50	
+ 1364		+14.91	
+ 25	50 46.42	+34.26	
-18 8.00	8 53.6		
55 11 50.97			

Nov. 27 16 20

		9.2538	
		9.9545	
		.2691	
0 40 48	+3.405	+.333	
+54 13	-.04	8.9669	
39 40.0		9.9929	
6.3		9.9982	
40 15.6	41 0.9	9.0575	
21.7	4.3		
27.9	7.6		
	11.6	0.5321	
9.1	15.0	8.9598	
		9.0504	
	-27.22	8.3113	
	-2 37.84		
		+3.607	
6.52	3.94	+ .764	
40 21.73	41 7.88	+ .868	
-13.55	+12.28	+ .382	
+ 4.65	+ .86	+5.621	
+ 13.50	- .07		
	- .02	9.2538	
	41 20.98	9.9094	
	- 5.62	9.9929	
	41 15.36	9.1632	
+ 11.59	9.76695	-.1456	
49 26.1	1.14748	.2534	
15.2	1.02218	+.1078	
4.13	54490	1.2949	
49 20.65		9.2538	
-35.87	10.52	9.0326	
48 31.17	53 33	9.9023	54
43.58	54 15 8.24		48

54			
38 43.78	- 35.10	54	
- 18 21.03	15 18.23	+2.089	
-55.05		- 1.50	
- .86		+ .83	
+ 12.78		+1488	
+ .22	40 48.04	+35.10	
-18 8.94	12 40.4		
54 15 41.74			
Nov. 28			
	-.03		
	-27.97		
	-2 36.56		
		+3.719	
769	33.36	+ .789	
50 19.0	50 59.5	+.845	
26.0	3.2	+.487	
31.9	6.6	+5.840	
	10.3		
8.4	14.0		
		9.0565	
	-27.97	8.4141	
	-2 36.56		
		+3.707	
7.69	33.36	+ .784	
50 25.68	51 6.72	+ .845	
+ 41.09	+12.65	+ .487	
	+ .86	+5.840	
+ 13.44	- .05		
	- .02	9.3466	
	51 20.16	9.9144	
	- 5.84	9.9890	
	51 14.32	9.2610	
+ 12.84	9.75696	-.1824	
53 14.2	1.61374	.2476	
59.9	1.48448	+.0652	
14.1		1.2910	
53 7.05		9.3466	
-30.51		8.8142	
52 36.54	55 12 3.81	9.9034	

54			
30 11.81	- 34.41	54	
- 18 20.84	11 29.40	+20.77	
- .43		- 1.87	
- .62		+ .48	
+ 1364		+15.03	
+ 25	50 46.35	+34.41	
-18 8.00	8 52.8		
55 11 50.97			

Nov. 28

0 52 22	3.496		
+54 6	-.04		
51 12.5			
53 59.5			
51 52.5	52 36.5	9.0563	
58.3	40.6		
4.0	4.35		
	47.1	0.5436	
8.8	50.6	8.9533	
	-27.94	9.0446	
	-2 36.24	8.4160	
		+3.704	
17.48	41.77	+ .753	
51 58.8	52 43.54	+.856	
+ 45.27	+12.25	+ .486	
	+ .86	+ 5.799	
+ 13.00	- .07		
	- .03	9.3597	
	52 56.35	9.9088	
	- 5.80	9.9883	
	52 50.55	9.2685	
+ 12.18	9.76817	-.1856	
55 54.4	1.65581	.2541	
41.2	1.53776	+.0685	
9.56		1.2903	
55 47.80		9.3597	
- 31.50		8.8357	
55 13.30	54 2.620	9.8941	

27 35.05	- 32.98		
- 18 21.03	8 52.22	+2.067	
- .53		- 1.92	
- .16		+ .53	
+ 12.65		+14.70	
+ 22	52 22.80	+33.98	
-18 8.85	6 16.0		
54 9 14.02			

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1993phae.proj.1611.

749

Nov 27 11 19

750

Nov 28

Nov 27 11 44

Nov. 28

Nov. 27 13 35

Nov 28

Nov 27 13 59

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1883phae.proj.1611.

1883 Nov 28 750 9.0856

Nov 27 749

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

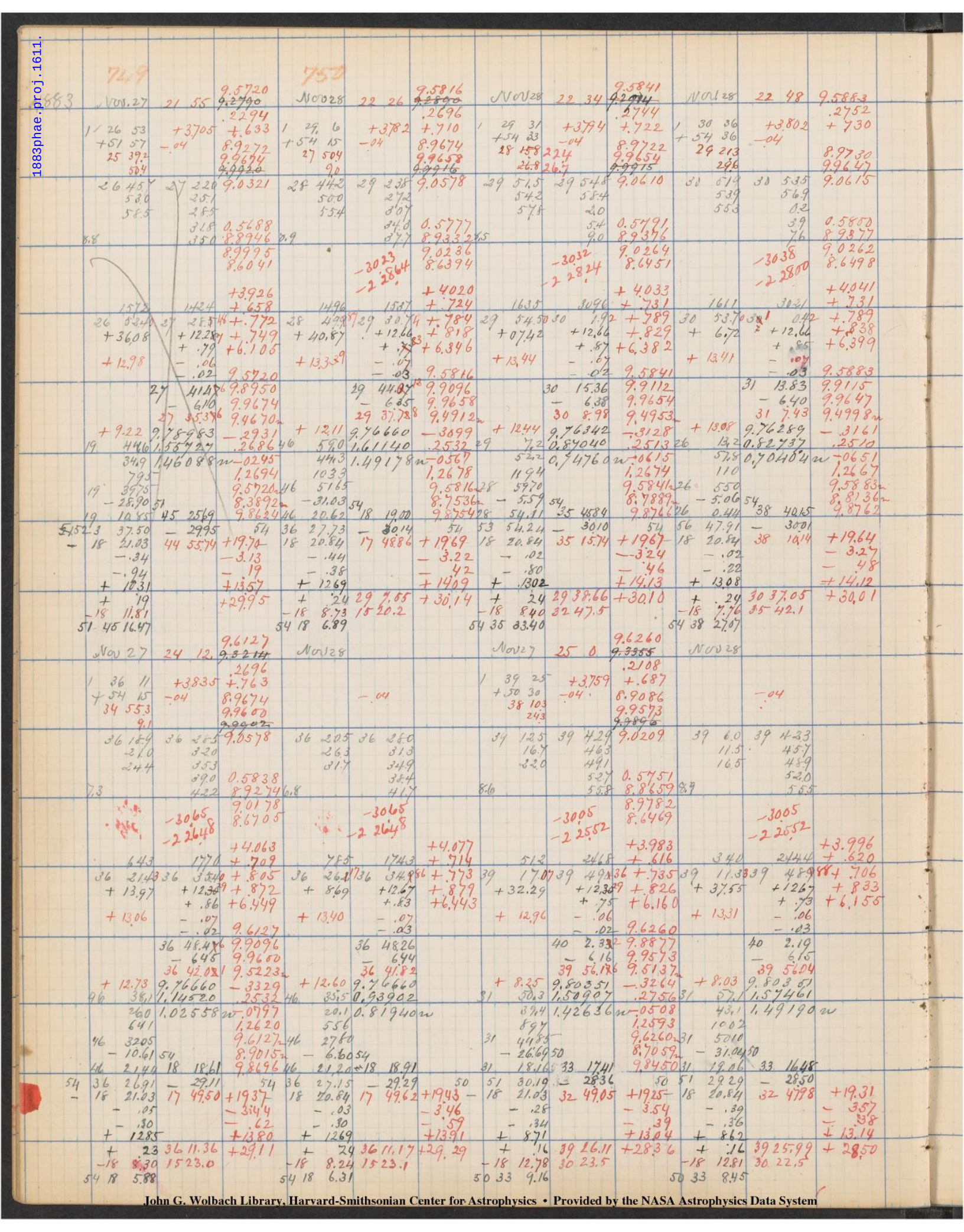
1883phae.proj.1611.

749

750

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1883phae.proj.1611.

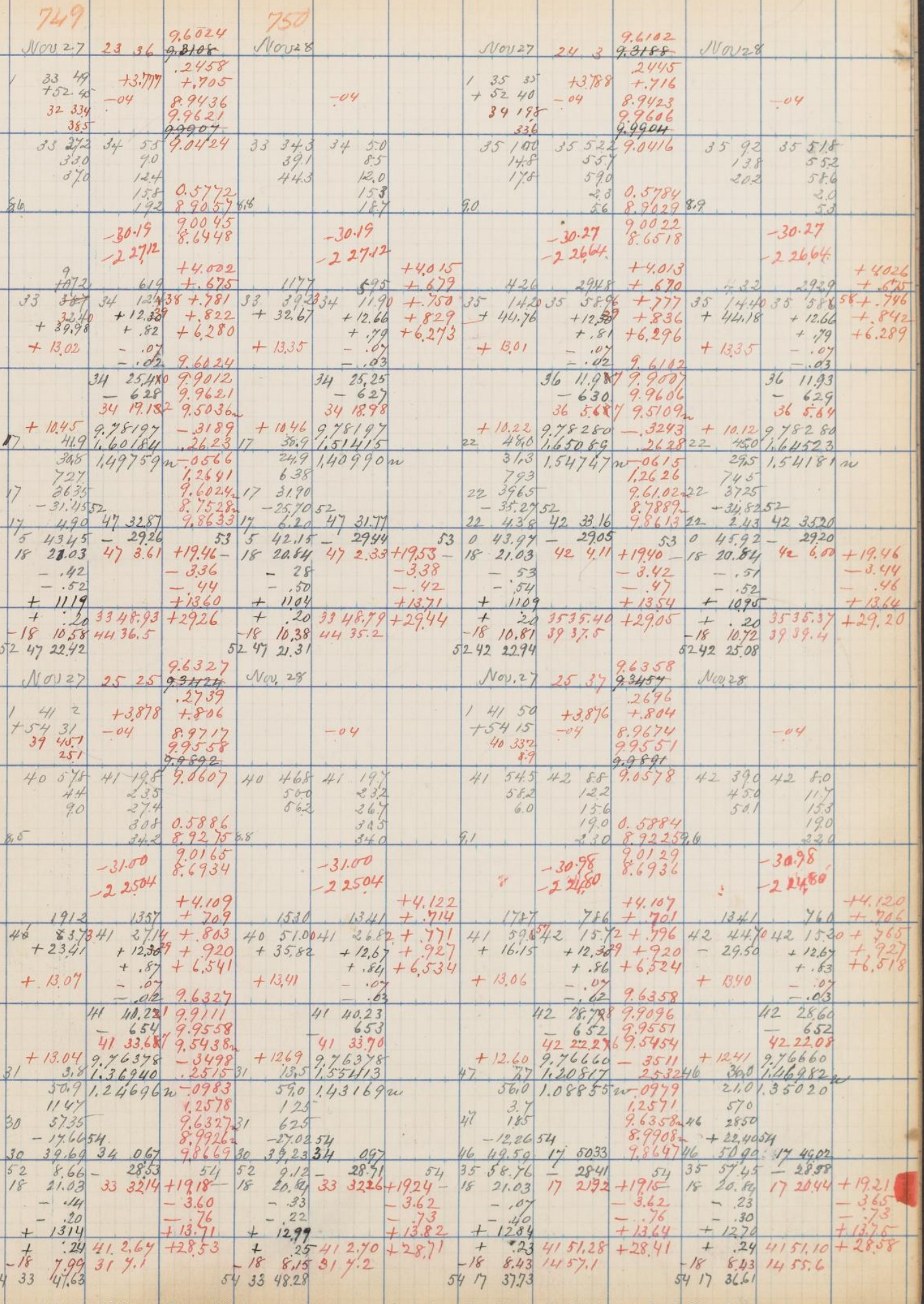


John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1883phae.proj 1611.

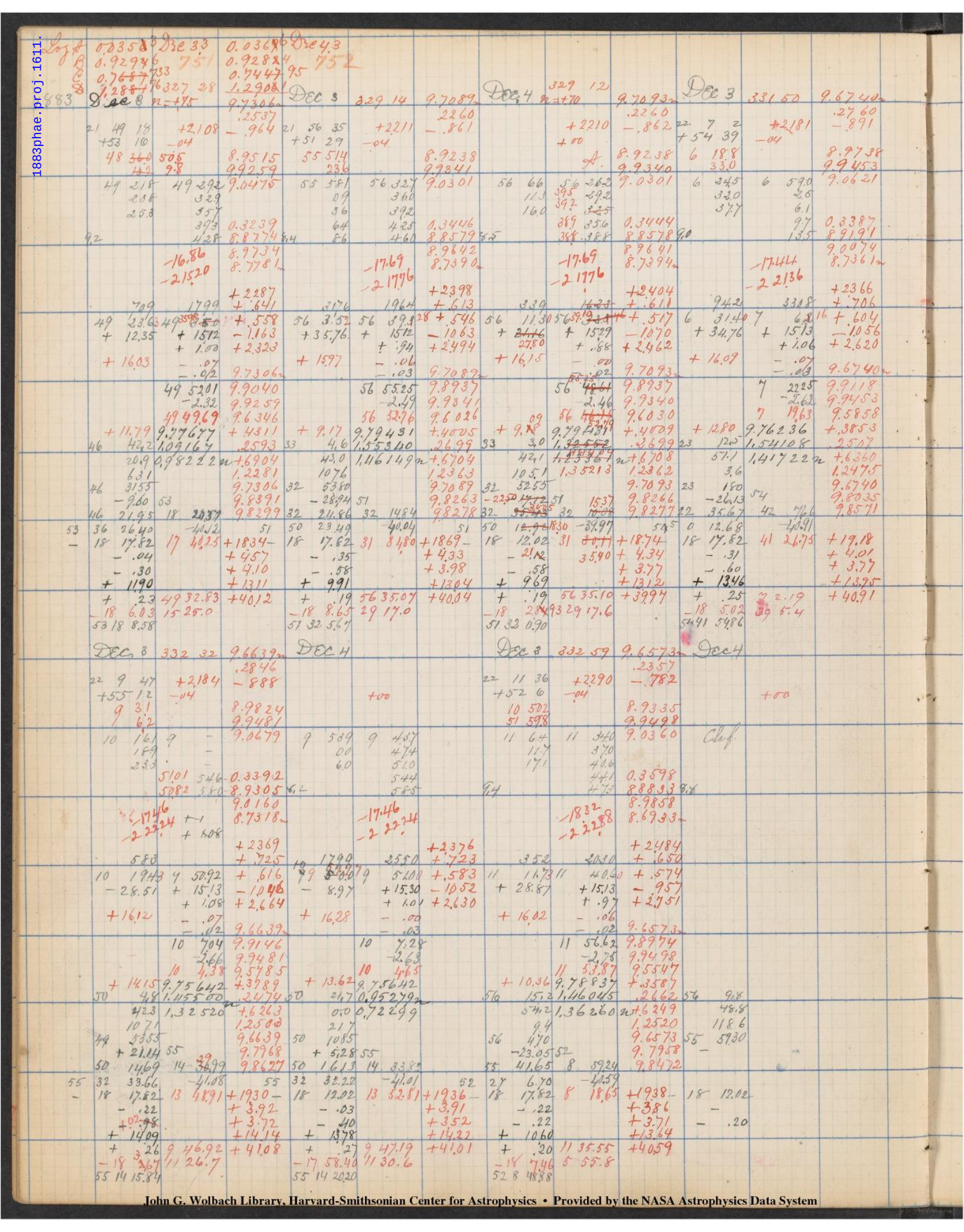
749

750



John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1883phae.proj.1611.



John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1883phae.proj 1611.

752

Dec. 24

757

Dec. 3

Dec 4

Dec. 3

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1883phae.proj.1611.

752

1883 DEC 4 9.2491

751

DEC 3 335 11 9.6230

DEC 4

DEC 3 338 11 9.5701

DEC 3 342 9 9.4865

DEC 4

DEC 3 343 38 9.4499

DEC 4

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1993phae.proj.1611.

751

752

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1883phae.proj.1611.

751

DEC 3 346 33

752

DEC 3 347 19

DEC 4

DEC 3 347 30

DEC 4

DEC 3 348 10

DEC 4

DEC 3 348 20

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1993phae.proj 1611.

752

Dec 4

757

Dec 3

Dec 4

Dec. 3

Dec 4

Dec 3

Dec 4

Dec. 4

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1883phae.proj.1611.

751

752

Dec 3 349 23 Dec 4

Dec 3 349 40 Dec 4

Dec. 3, 351 0 Dec 4

Dec 3 351 20 Dec 4 351 17

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

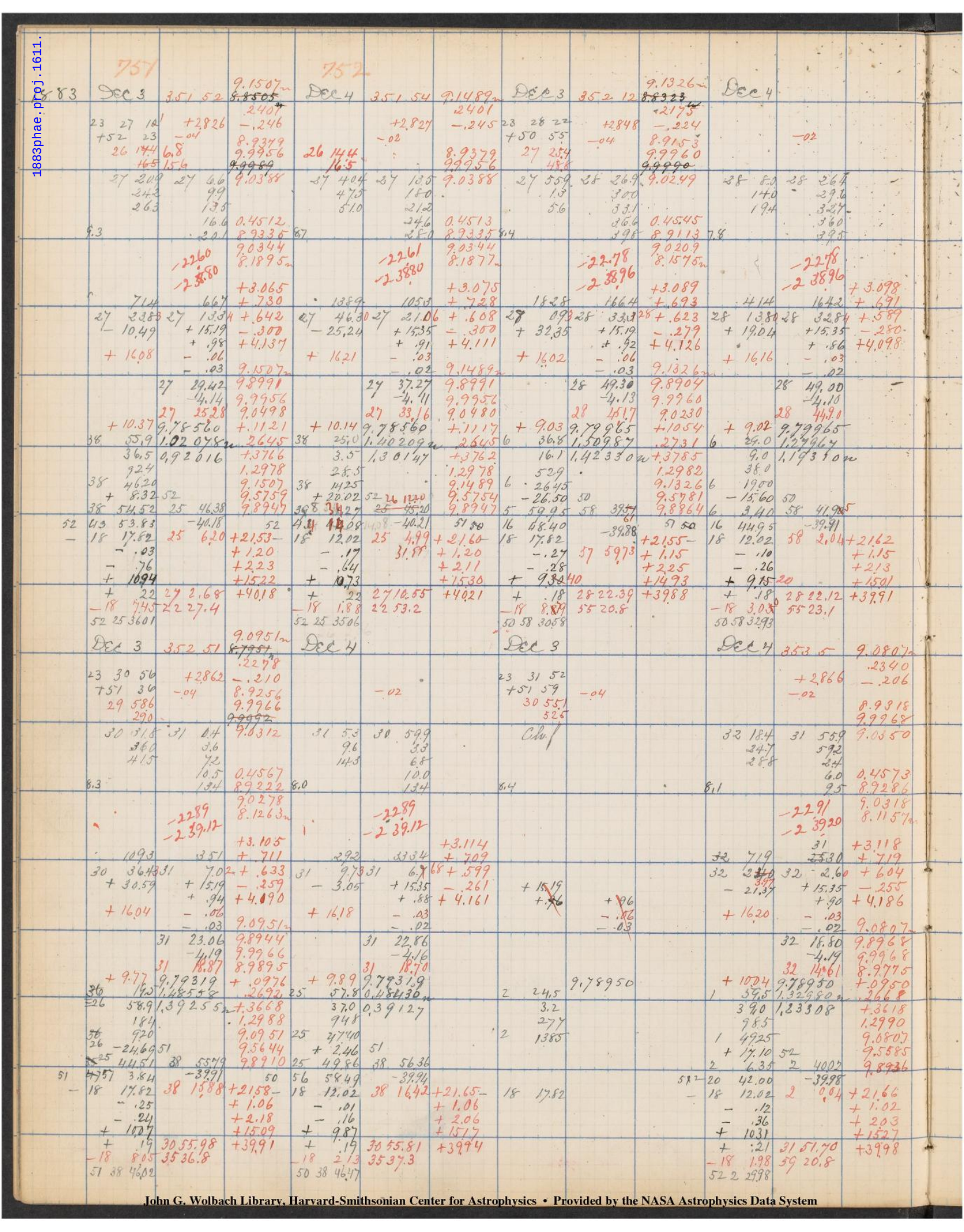
1993phae.proj.1611.

751

752

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1883phae.proj.1611.



John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1993phae.proj.1611

751

752

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1883phae.proj.1611.

751

1883 DEC 3 22 0 | DEC 3 22 26 | DEC 3 22 34 | DEC 3 22 49

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1883phae.proj.1611.

Dec 3 — Dec 3 — Dec 3 — Dec 3 — Dec 3 — Dec 3

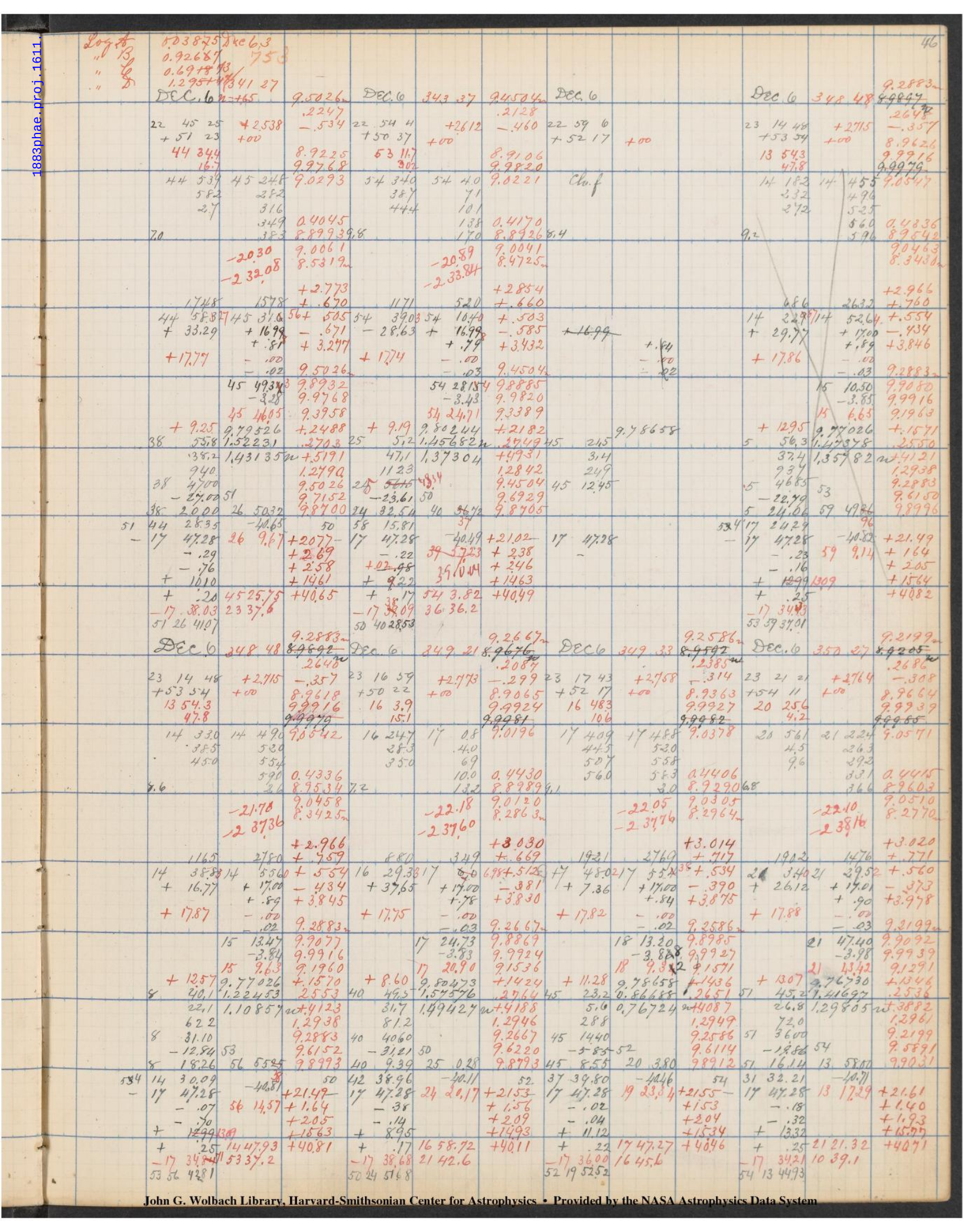
John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1883phae.proj.1611.

	757								
			9.6878			9.6966			9.7050
1883	Dec 3	29 10	9.4010	Dec. 3	29 49	9.4104	Dec 3	30 28	9.4195
			.2237			.2188			.2659
	1 56 3	+3888	+.816	1 58 39	+3895	+823	2 1 8	+4007	+.935
	+51 22	−06	8.9215	+51 1	−06	8.9166	+54 2	−06	8.9637
	54 45.5		9.9411	57 21.7		9.9383	59 48.3		9.9355
	15.8		9.9858	50 55.3		9.9851	53 56.2		9.9845
	56 17.9	56 17.5	9.0286	58 29.1	58 53.7	9.0257	0 56.8	1 28.1	9.0554
	23.6	21.0		34.4	57.1		3.6	31.6	
	26.5	24.9		39.8	0.3		8.2	35.0	
		27.6	0.5897		4.0	0.5905		38.8	0.6028
	5.5	31.0	8.8626	8.9	7.1	8.8549	8.9	42.4	8.8992
			8.9697			8.9640			8.9909
		−3108	8.7164		−31.12	8.7223		−3203	8.7604
		−2 20.24			−2 19.36			−2 18.40	
			+4.220			+4.228			+4.349
	6.80	12.20	+.619	10.33	30.22	+.609	18.86	17.59	+.674
	56 22.7 37	56 24.40	+.548	58 34.43	59 0.44	+.540	1 2.9 87	1 35.8 18	+.575
	+2.03	+15.30	+1.010	+26.01	+15.31	+1.024	+32.31	+15.31	+1.118
		+.94	+6.397		+.92	+6.401		+1.04	+6.716
	+16.11	−.10		+16.11	−.10		+16.22	−.10	
		−.03	9.6878		−.02	9.6966		−.03	9.7050
		56 40.51	9.8928		59 16.55	9.8909		1 51.66	9.9083
		−6.40	9.9411		−6.40	9.9383		−6.72 40	9.9355
		56 34.11	9.5806n		59 10.15	9.5875n		1 44.68	9.6133n
	+10.35	9.79542	−3807	+9.28	9.79872	−.3868	+12.65	9.76887	−.4105
	40 10.0	0.30750	.2707	1 2.2	1.41514	.2726	1 1.0	1.50934	.2546
	48.2	0.21670n	−.1100	43.1	1.32764n	−.1142	40.0	1.39199n	−.1559
	1182		1.2431	1053		1.2403	101.0		1.2375
	39 59.10		9.6878n	0 52.65		9.6966n	0 50.50		9.7050n
	−1.65	51	9.0414n	−21.26	51	9.0577n	−24.66	54	9.1928n
	39 57.45	22 4 43.15 3	9.8339	0 31.39	4 8.42	9.8292	0 25.84	4 17.34	9.8438
51	40 2 50.90	−27.45	51	22 16.96	−27.08	54	22 22.51	−27.07	
−	18 17.82	22 15.68 4	+19.00−	18 17.82	3 41.34	+18.88−	18 17.82	3 50.27	+18.75
	−.01		−4.14	−.18		−4.23	−.27		−4.31
	−.00		−.65	−.18		−.67	−.16		−.92
	+9.86		+13.24	+9.46		+13.10	+12.84		+13.55
	+.19	56 3.03	+27.45	+.18	58 39.03	+27.08	+.24	1 12.65	+27.07
	−18 7.75	21 55.4		−18 8.54	1 22.0		−18 5.17	1 31.9	
51	22 33.08			51 3 59.14			54 4 4.69		

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1883phae.proj.1611...



John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1883phae.proj.1611.

753

DEC 6 350 35 | DEC 6 350 58 | DEC 6 351 25 | DEC 6 351 26

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1883phae.proj.1611.

753

DEC 6 351 35

DEC 6

DEC 6 351 48

DEC 6 352

DEC 6 17 59

DEC 6 18 18

DEC 6 18 30

DEC 6

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1883phae.proj.1611.

753

1883 DEC 6 20 1

753

DEC 6 22 19

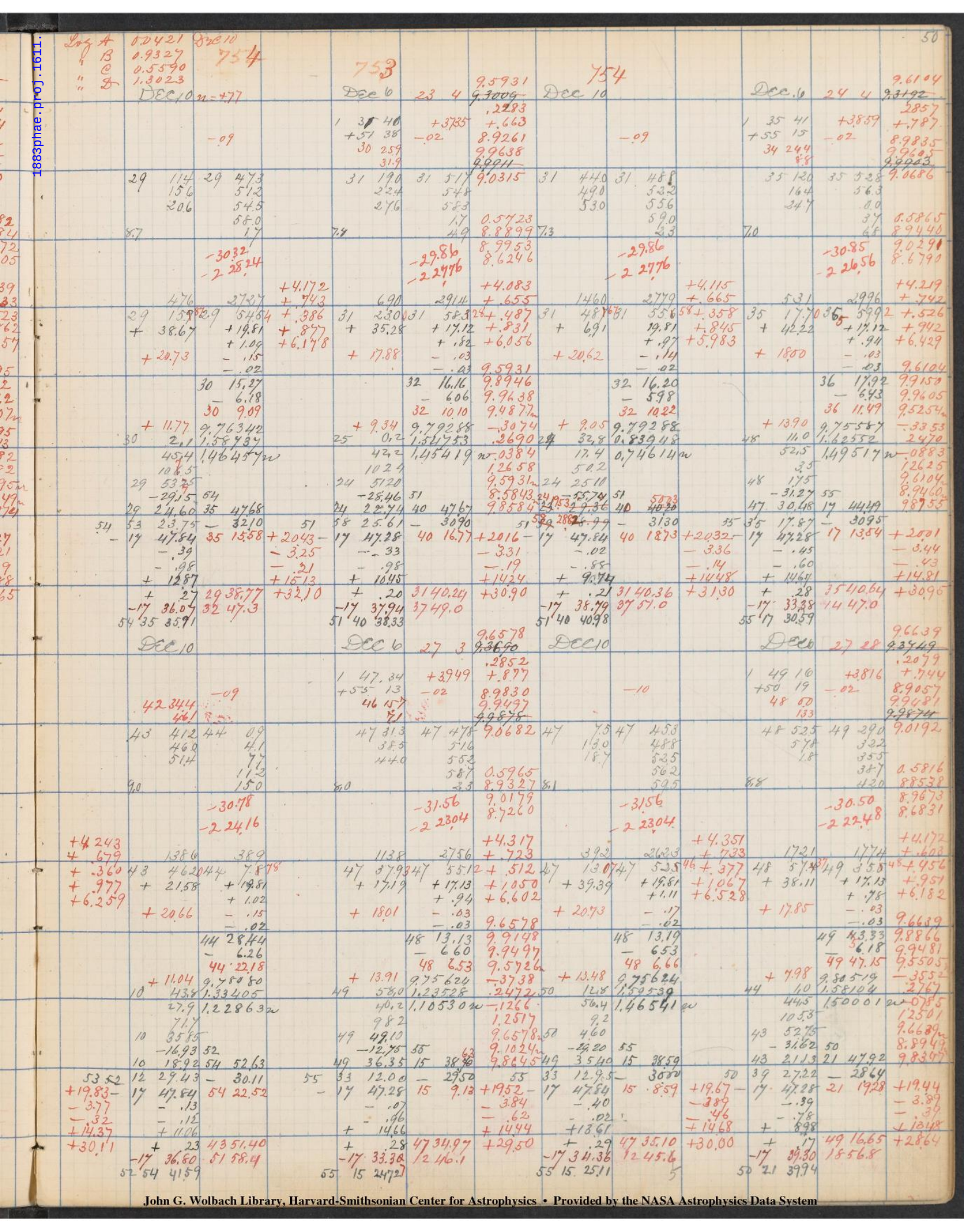
DEC 10

DEC 6 26 7

DEC 10

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1883phae.proj.1611.



John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1883phae.proj.1611.

754

753

DEC 10 | DEC 6 | DEC 6 | DEC 10

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1883phae.proj.1611.

753

Dec 6 28 7

1 51 53 +3.824 9.6733 9.3856 .2031 +.752 8.9009 9.9455 9.9868

+50 0 −.02

50 369

49 540

754

Dec 10 −.10 −.385

1 52 48 +3.851 9.6766 9.3890 .2149 +.779 8.9127 9.9445 9.9866

+50 46 −.02

51 31.7

405

Dec 6 28 21

Dec 10 −.10

51 590 52 57 9.0163

40 90

93 122

155 0.5825

6.5 188 8.8464

51 496 52 30

546 64

590 95

130

9.0 163

52 324 53 05 9.0233

565 39

599 70

104 0.5856

140 8.8572

8.7

52 528 52 575

549 10

568 44

78

109

−30.57 −2 21.60 8.9618 8.6896 +4.180 +.593

−30.57 −2 21.60 +4.213 +.601

−30.78 −2 21.28 8.9678 8.6999 +4.210 +.608

−30.78 −2 21.28 +4.243 +.616

1923 612 1632 482 1688 358 1645 3216

52 4.10 + 8.14 + 1786 52 12.24 + 17.14 + .77 − .03 − .02 +.459 +.965 +6.197 9.6733

51 544 + 15.24 + 20.54

52 9.64 +19.81 +.92 − .16 − .03 +.332 +.981 +6.127

52 563 + 10.89 + 1789

53 7.2 +17.14 +.80 − .03 − .02 16 +.457 +.989 +6.264 9.6766

52 548 + 9.49 + 20.57

52 4.32 +19.81 +.95 − .16 − .03 +.336 +1.025 +6.200

52 30.10 − 6.20 52 23.90 9.8846 9.9455 9.5579

52 30.18 − 6.13 52 24.05

53 25.05 − 6.26 53 18.79 9.8894 9.9445 9.5660

53 21.89 − 6.20 53 18.69

+ 8.28 2 34.2 9.80807 0.91062 −.3613 .2786

+ 7.57 2 37.9 9.80807 1.18298

+ 9.44 16 11.8 9.80105 1.18890 −.3681 .2741

+ 8.74 16 10.0 9.80105 0.97724

18.1 52.3 2 26.15 − 6.80 2 19.35 0.83247 50 2 50.00 −.0827 1.2475 9.6733 8.9175 9.8301

23.9 6.18 2 30.90 − 12.73 50 2 18.17 1.10483

56.15 11.3 16 56.5 − 10.56 50 15 55.09 1.02373 50 49 15.42 −.0940 1.2465 9.6766 8.9731 9.8939

63.0 5.0 16 25.0 − 7.80 50 15 54.70 0.89210

20 29.00 − 17 47.28 − .02 − .48 + .862 − 2.828 2 21.72 50 +19.33 − 3.98 − .41 +13.34

20 30.18 − 17 47.84 − .06 − .50 + 7.96 − 28.70 2 21.21 5150 +19.48 − 4.04 − .30 +13.56

6 53.26 17 47.28 − .03 − .22 + 9.50 − 28.27 48 47.15 5150 +19.28 − 4.01 − .46 +13.46

6 58.65 17 47.84 − .02 − .20 + 8.77 − 28.71 48 45.84 +19.44 − 4.07 − .34 +13.68

+ .16 −17 39.00 50 2 41.72 5153.33 0 0.1 +28.28

+ .17 −17 40.27 50 2 42.34 5153.48 59 59.6 +28.70

+ .19 −17 37.84 50 49 5.98 5248.01 46 25.9 +28.27

+ .19 −17 39.10 50 49 5.81 5247.91 46 24.6 +28.71

Dec 6 29 1

Dec 10

Dec 6 29 9

9.6858 9.3987 .2844 +.934 8.9822 9.9418 9.9859

1 55 24 +4.006 −.02

+55 10

54 89

48

1 56 0 +3.917 9.6876 9.4008 .2395 +.845 8.9373 9.9412 9.9858

+52 21 −.02

54 41.7

15.0

55 160 55 375 9.0677

215 411

266 442

482 0.6027

6.5 530 8.9240

55 47 55 348

100 380

153 418

454

6.6 492

56 59 56 125 9.0385

74 158

87 191

226 0.5930

261 8.8785

6.7

56 403 56 133

453 164

505 197

230

266

−32.01 −2 20.40 9.0095 8.7535 +4.379 +.709

−32.01 −2 20.40 +4.414 +.719

−31.32 −2 20.24 8.9797 8.7261 +4.282 +.638

−31.32 −2 20.24 +4.316

641 2230 300 2092 220 959 1361 990

55 21.8 + 23.23 + 18.03 55 44.60 +17.14 + .94 − .03 − .02 +.503 +1.118 +6.709 9.6858

55 1.00 + 40.84 + 20.72 55 41.84 +19.81 +1.11 − .17 − .03 +.370 +1137 +6.640

56 7.33 + 11.85 + 17.93 56 19.28 +17.14 +.84 − .03 − .02 +.469 +1.050 +6.439 9.6876

56 45.4 − 25.57 + 17.92 56 19.80 +17.14 +.84 − .03 − .03

56 2.63 − 6.71 55 55.92 9.9145 9.9418 9.6003

36 2.56 − 6.64 55 55.92 9.75678 1.36605 −.3984 .2475

56 37.11 − 6.44 56 30.67 9.8989 9.9412 9.5865

56 37.72 − 6.44 56 31.28 9.78592 1.40778

+ 14.24 52 58.9 + 13.01 53 0.9 −.3859 .2647 + 11.32 41 23.9 9.78592 1.07372 + 11.19 41 23.9

41.3 10.92 52 50.10 − 17.24 52 32.86 1.23661 55 12 42.45 −.1509 1.2438 9.6858 9.1787 9.8563

45.8 106.7 52 53.35 − 30.31 52 23.04 1.48165 23.63 23.72 55 12.43.80 1.37353

5.7 24.6 41 1480 − 9.41 52 5.39 24 7.00 0.97342 1.2432 9.6876 9.0835 9.8401

5.7 29.6 41 1480 + 20.30 41 35.10 52 23 37.16 1.30743

55 30 15.49 − 2.849 12 13.96 55 +19.16 − 4.10 − .74 +14.17

30 18.63 − 29.03 12 14.77 52 +19.32 − 4.15 − .55 + 14.41

41 42.96 17 47.28 − .04 − .24 + 1138 − 2.808 23 38.92 52 +19.14 − 4.11 − .60 +13.65

41 13.25 17 47.28 − .18 − .24 + 11.38 − 2.808 23 9.08

+ .28 −17 33.04 55 12 28.21 55 23.91 9 53.6 +2.849

+ .29 −17 34.83 55 12 30.79 55 23.91 9 54.4 +29.03

+ .22 −17 35.96 52 23 55.68 55 59.35 21 18.7 +28.08

+ .23 −17 36.09 52 23 25.97 55 59.96 20 48.8

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1883phae.proj.1611.

754

1883 DEC 10

1 56 0
+52 21
54 41.7
55.0

56 39.4
31.4
32.9
34.7

56 10.1
13.5
16.4
19.6
23.2

-31.32
-2 20.24

9.37 328

+4.316
+ .647

56 8.23
56 14.67
+ 20.62

56 16.56
19.81
+ .99
- .16
- .02

+ .346
+1.068
+6.377

56 37.18
- 6.38
56 30.80

+ 10.33
9.78592
1.16643m

42.7
10.1.9
50.95
+ 11.64
2.50

52 48 45.76
- 17 47.84
- .16
- .36
+10.52

- 28.56
39.69

+1.929-
- 4.17
- .44
+13.88

55 59.48
21 19.4

+ 28.56

DEC 10

9.4008
9.9858
9.9845

DEC 10

54 41.7
55.0

57 0.0
6.5
11.7
9.0

56 10.6
14.0
17.2
20.3
24.1

-.10

-3132
-2 2024

18.2 862

56 17.24
+ 19.81
+ .99
- .16
- .03

56 37.85
- 6.38
56 31.47

9.78592
1.06883m

+ 9.77

42.7
10.1.9
50.95
+38.76 5.87 52
29.42 69 28.3 40.57
28.70

52 41.8 18.64.27
- 17 47.84
- .6283
- .36
+10.52

- 28.56
28 12.01
3

56 0.15
20 51.8

+ .23
-17 37.45
38.07
52 22 30.80

DEC 6

30 39

9.7074
9.4221
.2390
+.884
8.9368
9.9346
9.9843

753

DEC 6

29.53

1 58 53
+50 44
57 356
386

+3.888
-.02

9.6974
9.4113
.2144
+.816
8.9122
9.9380
9.9851

58 47.5
53.0
58.2
9.6

59 7.5
10.6
14.0
17.1
20.3

-31.08
-2 19.28

1587 695

9.0230
0.5897
8.8502

58 52.90
+ 21.00
+ 17.88

59 13.90
+ 17.14
+ .79
- .03
- .02

+ 450
+1.036
+6.334

9.8610
8.7204

+4.250
+ .598

59 31.78
- 6.33
59 25.45

9.8892
9.9380
9.5866m
-.3860
.2743

+ 8.92
9.80136
1.32222

7.3
8.2
15.0
- 17.27
17 58.83

1.23736m
50 1216
47 11.46

-.1117
1.2400
9.6974
9.0488m
9.8272

DEC 10

9.6974

58 44.5
50.4
55.0
9.7

59 4.8
7.9
11.3
14.6
18.0

-31.08
-2 19.28

1499 566

9.0230

58 49.95
- 36.67
+ 21.33
+ 20.57

59 11.30
+ 19.82
+ .94
- .16
- .03

59 31.87
- 6.28
59 25.59

9.80136
1.32899

3.0
21.0
24.0
18 19.0

1.24413m

- 17.51
47.46

50 15.27
47 15.77

+4.284
+ .607

+ .321
+1.054
+6.276

52 41 45.76
- 17 47.84
- .16
- .36
+10.52

- 28.56
39.69

+1.929-
- 4.17
- .44
+13.88

55 59.48
21 19.4

+ 28.56

DEC 10

9.4495

DEC 6

30 59

9.7116
9.4266
.2033
+.822
8.9011
9.9331
9.9840

2 1 8
+54 2
59 483
53 56.2

-10

9.9845

2 1 59
+52 19
0 40.3
13.2

+3.956
-.02

2 3 17
+50 1
1 59.5
49 55.1

+3.894
-.02

1 15.4
20.9
25.1
9.4

1 23.7
27.2
30.5
33.9
37.4

2 8.3
14.2
18.0
9.2

2 13.4
16.4
20.0
23.1
26.2

9.0381
0.5973
8.8714

2 4.5
8.3
11.7

2 10.7
13.7
17.0
20.4
23.8

3 11.2
17.6
21.8
9.8

3 30.6
34.0
36.9
40.0
43.3

9.0164
0.5904
8.8342

-32.03
-2 18.40

-31.62
-2 18.16

-31.13
-2 17.68

8.9727
8.7455

+4.325
+ .628

+4.359
+ .637

+4.257
+ .576

8.9949
8.7280

6.14 27 405 991 245 856 541 1848

1 20.8
+10.07
+20.69

1 30.54
+ 19.82
+ 1.06
- .17
- .02

+ .355
+1155
+6.604

2 13.50
+ 6.34
+ 17.92

2 19.8
+17.14
+ .84
- .03
- .03

+ .462
+1.098
+6.513
9.7074

2 8.12
+ 8.95
+ 20.63

2 17.2
+19.82
+ .99
- .16
- .02

+ .340
+1.116
+6.452

3 16.70
+ 20.26
+ 17.80

3 34.96
+ 17.15
+ .71
- .03
- .03

+ .488
+1.055
+6.326
9.7116

1 51.23
- 660
1 49.63

2 37.78
- 651
2 31.25

2 37.75
- 645
2 31.30

3 54.76
- 6.33
3 48.43

+ 12.35
9.76887
1.00303

+ 10.89
9.78625
0.80209

+ 9.99
9.78625
0.95182

+ 8.37
9.80792
1.30664

9.8847
9.9331
9.5963m
-.3947
.2785

54.2 0.88568m
43

20.7 0.70212m
59.5

22.0 0.85185m
59.1

46.2 1.22834m
108.5

-.1388
1.2366
9.7074
9.1324m
9.8333

-.1162
1.2351
9.7116
9.0652m
9.8178

1 2.15
- 7.69 54 18
0 54.46 4 24.40

43 29.75
- 5.04 52
43 24.71 21 47.25

43 29.55
- 7.11 52
43 22.44 21 48.06

1 54.25
- 16.92 50
1 37.33 3 32.41

54 21 53.89
- 17 47.84
- .03
- .20
+12.32

- 28.14
32.26

+1.904-
- 4.34
- .56
+14.50

39 23.64
17 47.28
- .01
- .70
+11.38

- 27.31
21 19.94

+1.885-
- 4.31
- .67
+13.44

39 25.91
17 47.84
- .02
- .70
+10.48

- 27.80
21 20.26

+1.903-
- 4.37
- .49
+13.66

21 11.62
17 47.28
- .11
- .38
+ 8.70

- 26.83
3 5.28

+18.78
- 4.35
- .57
+12.97

+ .26
-17 35.49
544 8.05

1 12.60
1 31.9

+ 28.14

+ .22
-17 36.39
52 21 36.36

1 59.63
19 1.8

+ 27.31

+ .23
-17 37.85
52 21 38.07

1 59.68
19 2.1

+ 27.80

+ .16
-17 38.91
50 3 23.74

3 17.30
0 47.6

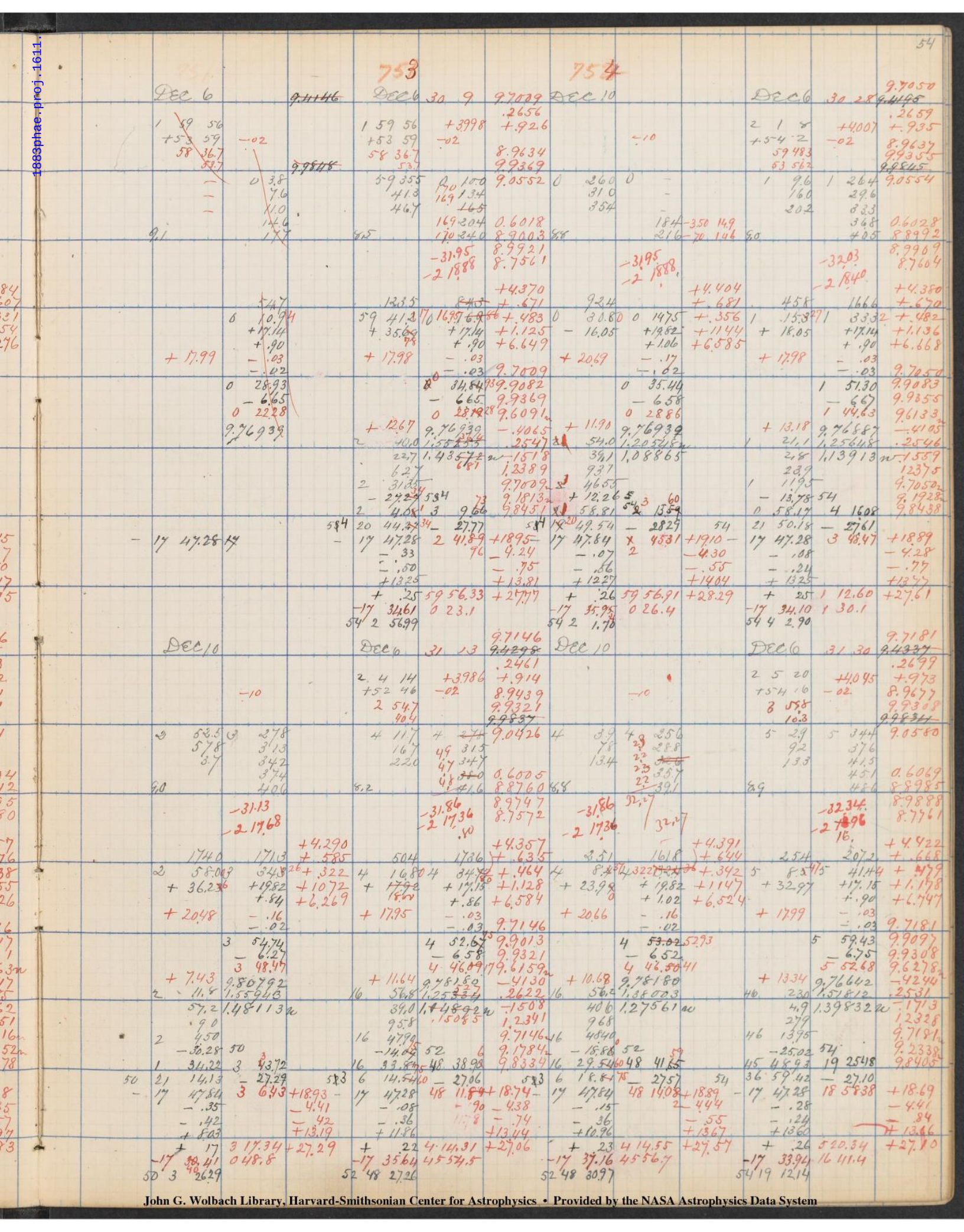
+ 26.83

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1883phae.proj.1611.

753

754



John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1883phae.proj.1611.

754

753

DEC 10

DEC 6 31 46

DEC 10

DEC 6 31 57

DEC 10

DEC 6 32 46

DEC 10

DEC 6 32 58

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1983phae.proj.1611.

754

DEC 10

753

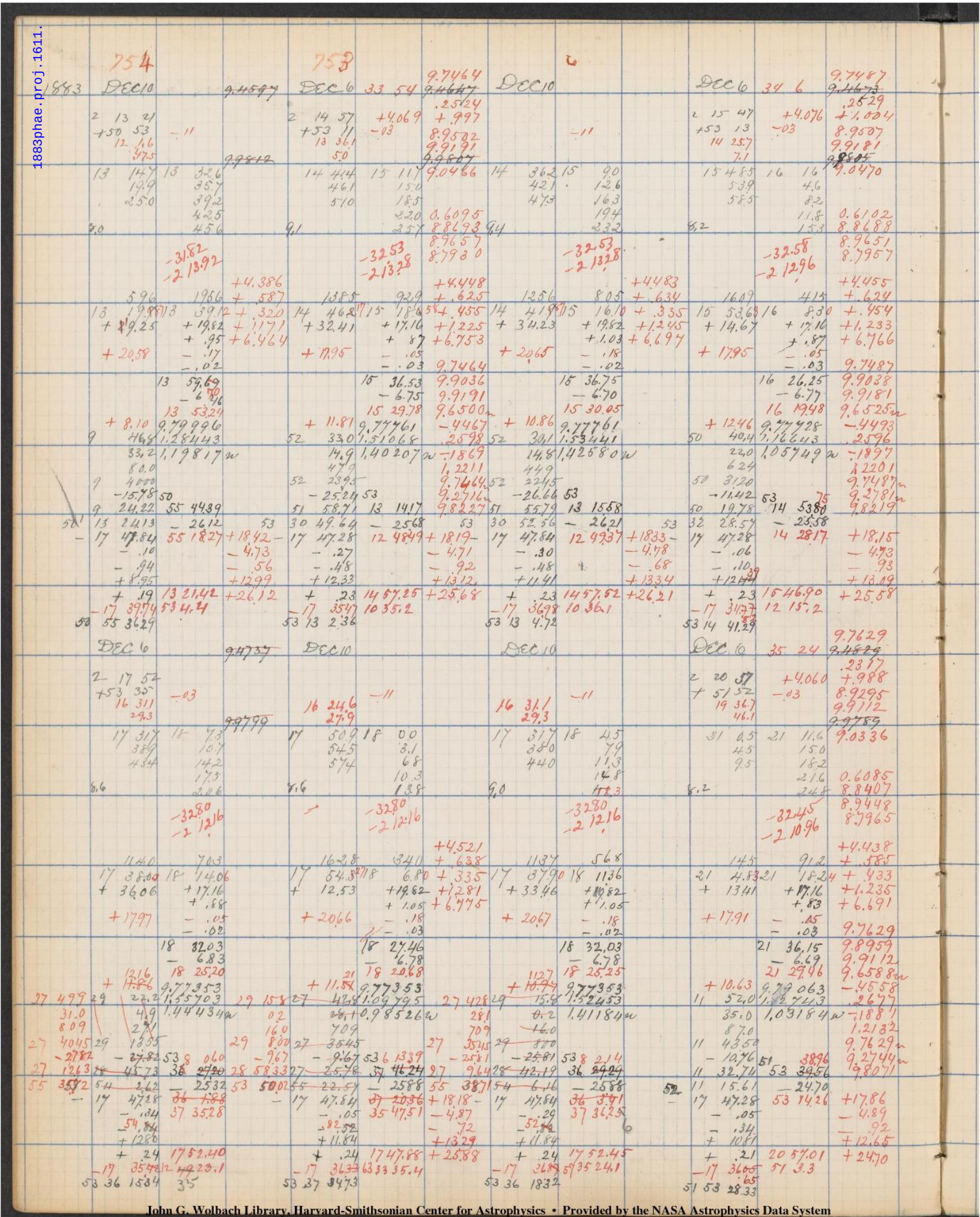
DEC 6 32 17 9.7276 9.44444 .2479 +4.017 +.945 8.9457 9.9271 9.9825

DEC 10

DEC 6 32 34 9.7310 9.4480 .2519 +4.033 +.961 8.9497 9.9257 9.9822

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1883phae.proj.1611.



John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1883phae.proj.1611.

754

DEC 10

753

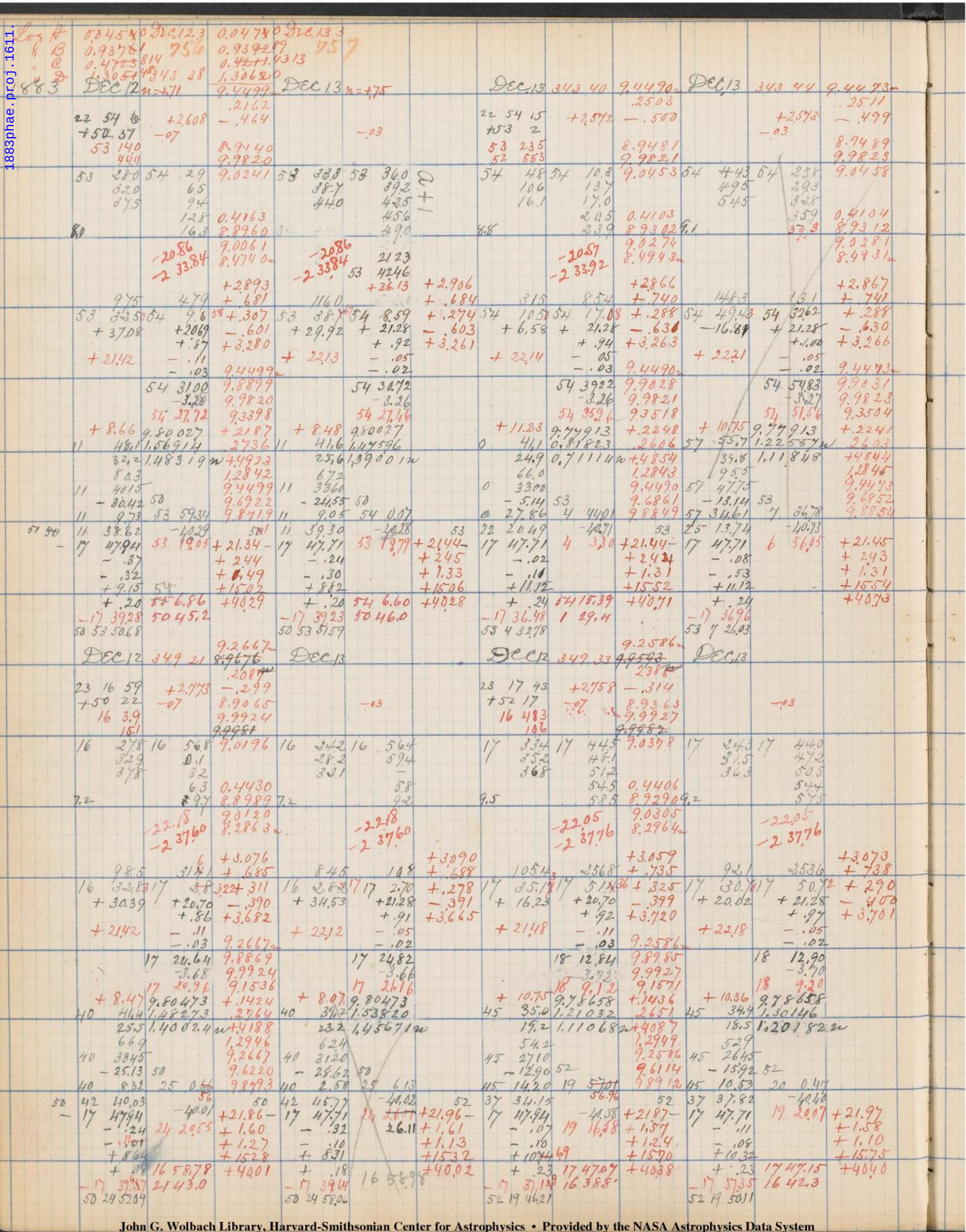
DEC 4 34 20 9.7513

DEC 10

DEC 6 34 37 9.7544

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1883phae.proj.1611.

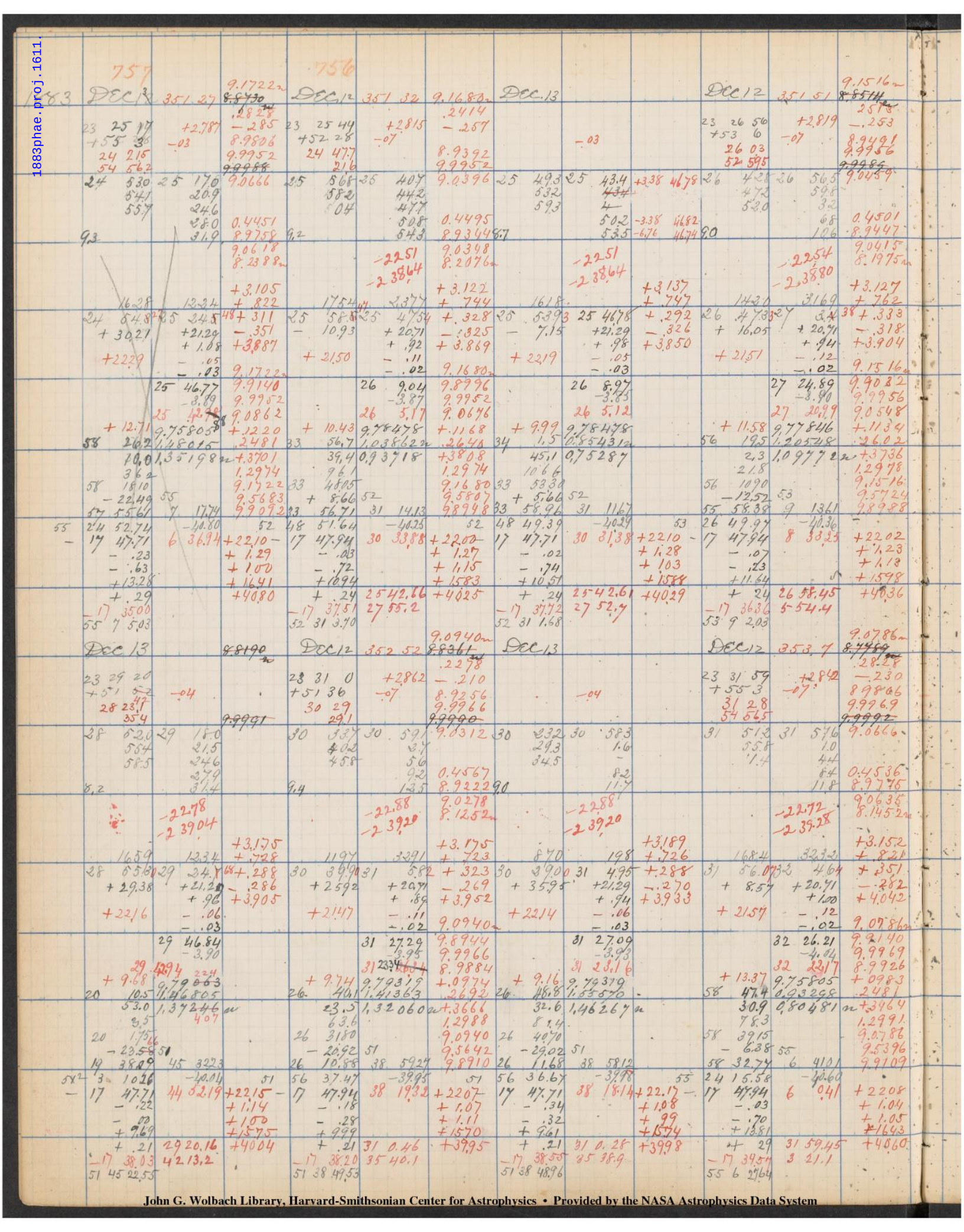


John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1993phae.proj.1611.

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1883phae.proj.1611.



John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1003phae.proj 1611.

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1883phae.proj.1611.

757 1883 Dec 13 8.6810 n

23 37 32
+50 35 −.04
36 34.0
28.1
9.9995

37 24.9 37 31.4
28.4 34.7
33.2 37.7
41.0
44.3

−23.31
−2 39.68

86.5 189.1 +3250 +.703

37 28.83 37 37.82 +.282
+8.99 +21.29 −.204
+.91 +4.031
+22.11 −.06
−.03

37 59.93
−4.03
37 55.90
+8.20 9.80274
27 43.3 0.95376
27.2 0.87028 n
10.5
27 35.25 50
−7.42
27 27.83 37 41.01

50 55 20.62 −39.58 53
−17 47.71 37 1.43 +2224
−.03 +.83
−.49 +.94
+8.54 +15.57
+.18 37 32.59 +39.58
−17 39.51 34 21.8
50 37 32.81

756 Dec 12 356 16 8.8137 n 8.5124
.2567
23 44 37 +2.955 −.117
+53 24 −.07 8.9539
43 37.8 9.9991
17.1 9.9998

44 20 44 86.5 9.0490
80 40.0
130 43.4
47.0 0.4706
60 50.5 8.9530

−23.62 9.0481
−2 40.08 7.8627 n
+3278
230 67 217.4 +.776
44 71 44 43.5 48 +.338
+35.81 +20.72 −.147
+.96 +4.245
+21.54 −.12
−.02 8.8137 n

45 5.02 9.9049
−4.24 9.9991
45 0.78 8.7186
+11.20 9.77541 +.0523
38 42.0 1.55400 .2584
24.8 1.44319 n +.3107
66.8 1.3013
38 33.40 8.8137
−27.75 53 9.4923
38 5.65 27 5.96 9.9040

44 42.70 −39.87 53
17 47.94 26 26.09 +2220
−.34 +.56
−.68 +.94
+11.97 +16.17
+.25 44 37.16 +39.87
−17 36.74 23 46.0
53 26 54.76

Dec 13 8.8137 n 8.5124 (8.7445 n)

44 11.9 44 35.8
17.3 39.4
22.0 42.6
46.2
8.8 49.8

−23.62
−2 40.08
+3293
51.2 213.8 +.780
44 17.07 44 42.87 76 +.302
+25.69 +21.29 −.147
+1.07 +4.228
+22.20 −.07
−.03

45 4.96
−4.23
45 0.73
+10.94 9.77541
38 32.6 1.40976
15.9 1.29895 n
48.5
38 24.25 53
−19.90
38 4.35 27 7.23

44 44.00 −39.93 53
17 47.71 26 27.30 +2230
−.18 +.57
−.65 +.84
+11.52 +16.22
+.25 44 37.11 +39.93
−17 36.77 23 47.2
53 26 56.29

Dec 12 356 49 8.7445 n 8.4442
.2599
23 46 46 +2.971 −.101
+53 35 −.07 8.9568
45 47.2 9.9993
28.3 9.9998

46 17.3 46 46.8 9.0509
22.1 50.4
28.7 53.8
57.4 0.4729
89 0.6 8.9561
9.0502
−23.75 7.7954 n
−2 40.16
+3295
68.1 269.0 +.782
46 22.70 46 53.80 +.340
+31.10 +20.72 −.126
+.97 +4.291
+21.55 −.12
−.02 8.7445 n

47 15.35 9.9059
−4.29 9.9993
47 11.06 8.6504
+11.76 9.77353 +.0447
27 19.0 1.49276 .2572
2.0 1.38007 n +.3019
21.0 1.3015
27 10.50 8.7445
−23.99 53 9.4799
26 46.51 38 25.66 9.9052

56 1.84 −39.83 53
17 47.94 37 45.83 +2221
−.25 +.48
−.42 +.92
+12.18 +16.22
+.25 46 47.31 +39.83
−17 36.18 35 5.7
53 38 13.90

755 Dec 11 13 34 9.3703 9.0720
.2061
0 53 42 +3.449 +.377
+50 12 −.07 8.9039
52 38.7 9.9877
5.9 9.9970

53 19.5 53 47.4 9.0181
24.4 50.6
28.8 54.0
57.2 0.5377
7.2 0.2 8.8916

−27.58 9.0058
−2 36.00 8.3884
+3.813
72.7 269.4 +.671
53 24.2 53 53.9 88 +.334
+29.65 +20.21 +.491
+.89 +5.309
+20.96 −.11
−.03 9.3703

54 14.84 9.8858
−5.31 9.9877
54 9.53 9.2561 n
+8.40 9.84625 −.1803
50 13.2 1.47202 .2774
57.1 1.39205 n +.0971
10.3 1.2897
50 56.5 9.3703
−24.66 50 8.9872
49 40.49 15 29.36 9.8735

50 33 7.86 −34.88 50
−17 46.90 14 54.98 +2154
−.24 −.202
−.02 +.32
+8.49 +15.04
+.17 53 41.95 +34.88
−17 38.50 12 18.5
50 15 20.96

757 Dec. 13

54 29.8 54 15.7
34.3 18.9
40.6 22.0
24.8
7.2 24.2

−27.58 93.9
−2 36.00 110.6
54 187.8
237.2
−25.78 +3.847
104.7 530.8 +.677
54 34.9 53 56.34 +.267
−38.56 +21.32 +.495
41.90 +.90 +5.286
+22.12 −.08
−.02

54 18.46 15.12
−5.29
54 13.17 9.83
+7.16 9.80625
49 10.0 1.50217
54.8 1.50617
4.8 1.54224
49 24.0
+32.65
49 34.85 50 30.48
15 33.37

33 13.87 −35.08 534
17 47.71 14 55.24 +21.73
−.40 55.40 −.204
−.76 +.26
+8.15 +15.13
+.17 53 42.25 +35.08
−17 40.55 62 12 19.4
50 15 26.16
23.39

Dec 11 14 22 9.3947 9.0968
.2622
0 56 52 +3.526 +.454
+53 47 −.07 8.9600
55 42.0 9.9862
40.4 9.9966

56 27.9 56 58.4 9.0529
32.7 1.8
37.4 5.5
8.8 0.5473
8.4 12.3 8.9462

−28.18 9.0391
−2 35.52 8.4476
+3.899
98.0 67 326.8 +.761
56 32.7 57 5.7 36 +.361
+32.69 +20.21 +.564
+1.01 +5.585
+21.07 −.12
−.03 9.3947

57 26.43 9.9070
−5.58 9.9862
57 20.85 9.3017 n
+12.39 9.77147 −.2003
15 21.5 1.51441 .2560
5.2 1.39966 n +.0557
26.7 1.2882
15 13.35 9.3947
−25.10 53 8.7459
14 48.25 50 25.59 9.8932

8 0.10 −35.25 584
17 46.90 49 50.34 +2147
−.28 −.214
−.04 +.18
+12.45 +15.74
+.26 56 52.67 +35.25
−17 34.51 47 14.8
53 50 13.20

Dec 13

56 25.5 56 57.2
31.6 0.7
37.4 4.2
7.8
8.6 11.2

−28.18
−2 35.52
+3.933
94.5 321.1 +.768
56 31.50 57 4.22 +.289
+32.72 +21.32 +.567
+1.03 +5.557
+22.24 −.06
−.02

57 26.46
−5.56
57 20.90
+11.89 9.77147
15 21.2 1.51481
4.2 1.40006 n
25.4
15 12.70
−25.12 53
14 47.58 50 24.95

8 0.77 −35.48
17 47.71 49 49.47 +21.66
−.28 −.216
−.04 +.15
+11.95 +15.83
+.26 56 52.72 +35.48
−17 35.82 47 14.0
53 50 13.06

139

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1883phae.proj.1611.

Log A 6.0436
" B 0.9353
" C 0.5179
" D 1.3038

757

Dec 13

-.05

46 10.6 46 46.0
15.0 49.3
21.0 52.8
56.4
8.6 0.0

-23.75
-2.4016
+.3311
465 2645 +.1785

46 15.50 46 52.90 +.303
+ 37.40 +21.29 -.126
+ 1.02 +4.273
+ 2220 - .08
- .03

47 15.10
-4.27
47 10.83
+11.17 9.97353
27 22.0 1.57257
6.0 1.66018n
28.0
27 14.00
-28.85 53
26 45.15 38 26.68

53 56 13.20 6 51
-17 47.71 -39.86
- .34 37 46.80
- .42
+11.71
+.25 46 47.08 +39.86
-17 36.54 35 6.6
53 38 15.49

Dec 11 16 32 9.4542
9.1576

1 5 32 +3.592
+53 44 -.08
4 20.8
37.9

5 4.7 5 39.4 9.0524
0.4 43.1
15.5 46.2
49.5 0.5553
6.0 53.1 8.9409 8.3

-28.70
-2 33.84
9.0341
8.5066
+3.971
306 2313 +.752

5 10.205 46.8 26 +.356
+ 36.06 + 20.21 +.646
+ 1.01 +5.725
+ 21.05 - .13
- .03
9.4542

6 7.05 9.9068
-5.72 9.9817
6 1.59 9.3610n
+11.70 9.77199 -.2296
18 14 21.55703 .2563

22 1.44280 n +.0267
21.4 1.28837
18 10.70 9.4542 18
-27.72 53 8.4265
17 42.98 47 30.17 9.8885

534 5 5.37 - 3446 534
-17 46.90 46 55.71
- .31
- .61
+12.39
+ .24 5 32.89
-17 35.20 44 21.9
53 47 18.47

Dec 11.

755

Dec 11 12 42 9.3421
n=+.74 9.0435
.2146

0 50 14 +3.432 +.360
+50 45 -.07 8.9124
49 54 9.9892
37.9 9.9973

49 41.5 50 18.7 9.0232
44.6 22.2
48.0 2
25.4 0.5356
8.8 32.0 8.9016 9.6

-27.44
-2.3656
+.3795
1341 1013 +.687

49 44.70 50 25.32 +.339
+ 40.62 +20.21 +.467
+.90 +5.288
+ 2098 - .11
- .02 9.3421

50 46.30 9.8893
- 5.29 9.9892
50 41.01 9.2314n
+ 8.26 9.80120 -.1704
18 4.9 1.60874 .2742

49.2 1.52372 n +.1038
11.41 .1292
17 57.05 9.3421n
- 33.40 50 9.6204
17 23.65 47 4.06 9.8785

5 24.70 - 3.530
17 46.90 47 10.76 +.2162 -
- .45 - 1.89
- .57 + .35
+ 9.09 +1.522
+ .19 50 13.57 +35.30
-17 38.64 44 34.2
50 47 37.80

Dec 13

-.05

5 13.7 5 38.2
17.2 41.6
21.6 45.0
48.4
8.3 52.3

-28.70
-2 33.84
+.4006
525 2258 +.759

5 17.53 5 45.14 +.285
+ 27.57 +21.32 +.650
+ 1.02 +5.700
+ 22.23 - .09
- .02

6 7.33
- 5.70
6 1.63
+11.37 9.77199
18 12.8 1.42641

56.3 1.32621 n
9.1
45.5
-21.19 53
47.36 47 28.65

5 4.99 - 3469 545
17 47.71 46 53.96 +.2143 -
- .20 - .247
- .59 + .67
+11.90 +1.566
+ .26 5 32.93 +34.69
-17 36.34 44 26.1
53 47 17.28

Dec 11 12 54 9.3488
9.0505
.2617

0 51 2 +3.480 +.408
+53 45 -.07 8.9595
49 52.6 9.9889
38.5 9.9972

51 50 9.0526
12.3
15.5
18.8
22.3 0.5416
8.9484 93

-27.81 9.0415
8.4014

+3.848
+.765
769 195

51 15.42 +.363 52 6.5
+20.21 +.507 + 13.80
+ 1.01 +.5483
- .12 + 2113
- .03 9.3488

51 36.49 9.9068
- 5.48 9.9889
51 31.01 9.2556n
9.77181 -.1801 + 13.42
6 .2562 12 53.0

+.0761 87.4
1.2909 90.4
9.3488n 12 45.20
8.8814 - 10.31 54 9
9.8957 12 34.89 52 38.98
545

10 13.46 - 3586
17 46.90 82 4.12
- .05
- .53
+13.71
+2160 -
-1.92
+.25
+1583

Dec 11 17 41 9.4825
9.1868

1 10 10 +3.648
+54 47 -.08
8 57.4
40.4

Dec 13

-.05

9 46.3 10 16.9 9.0635
50.7 20.4
54.2 24.0
27.9
46 31.4 0.5620 7.7
8.9550

-29.16
-2 32.96
9.0425
8.5460
+.4033
1512 1206 +.777

9 50.40 10 24.12 +.363
+ 33.72 + 20.21 +.708
+ 1.05 + 5.881
+ 21.09 - .14
- .03
9.4825

10 45.21 9.9125
- 5.88 9.9790
10 39.33 9.3950n
+ 13.45 9.76093 -2483
15 32.9 1.52785 .2499

16.1 1.40260n +.0016
49.0 1.2810
15 24.50 9.4825n
- 25.37 54 7.2041
14 59.13 50 15.77 9.8915

7 49.22 - 3419 545
17 46.90 49 41.58 +.2112 -
- .30 - .262
- 1.08 + .01
+12.55 +15.68
+ .28 10 10.17 +84.19
-17 33.45 47 8.6
54 50 2.32

9 47.80 10 23.04 +.291
+ 35.27 + 21.32 +.712
+ 1.06 +5.855
+ 22.27 - .09
- .62

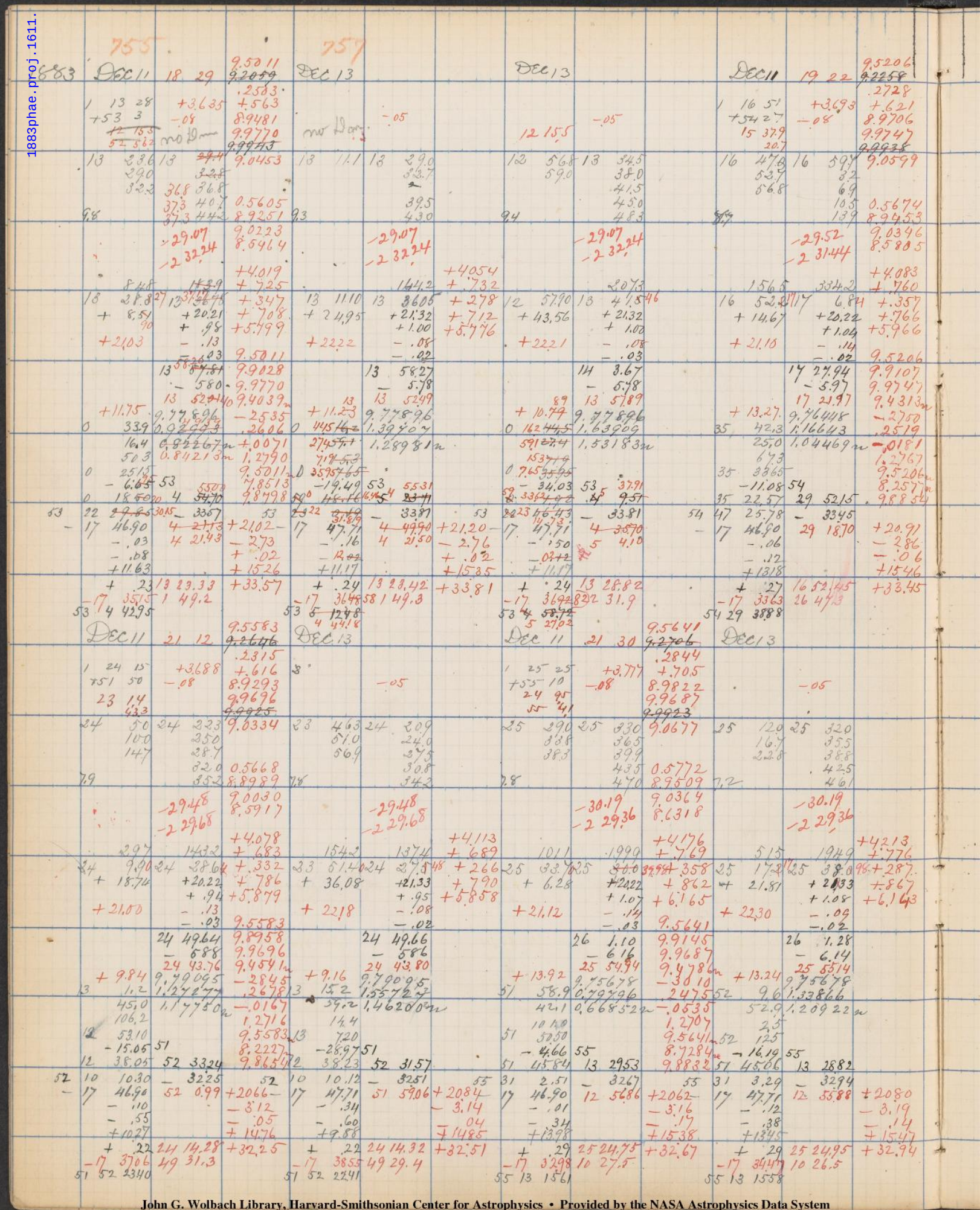
10 45.29
- 5.86
10 39.43
+12.93 9.76093
15 34.8 1.52785

17.0 1.42212n
51.8
15 25.91
-26.43 54
50 14.10

7 48.88 - 3443
17 47.71 49 39.67 +.2130
- .31 - 2.64
- .08 + .80
+13.03 +15.77
+ .29 10 10.32 +34.43
-17 34.78 47 6.7
54 50 1.17

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1883phae.proj.1611.



John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

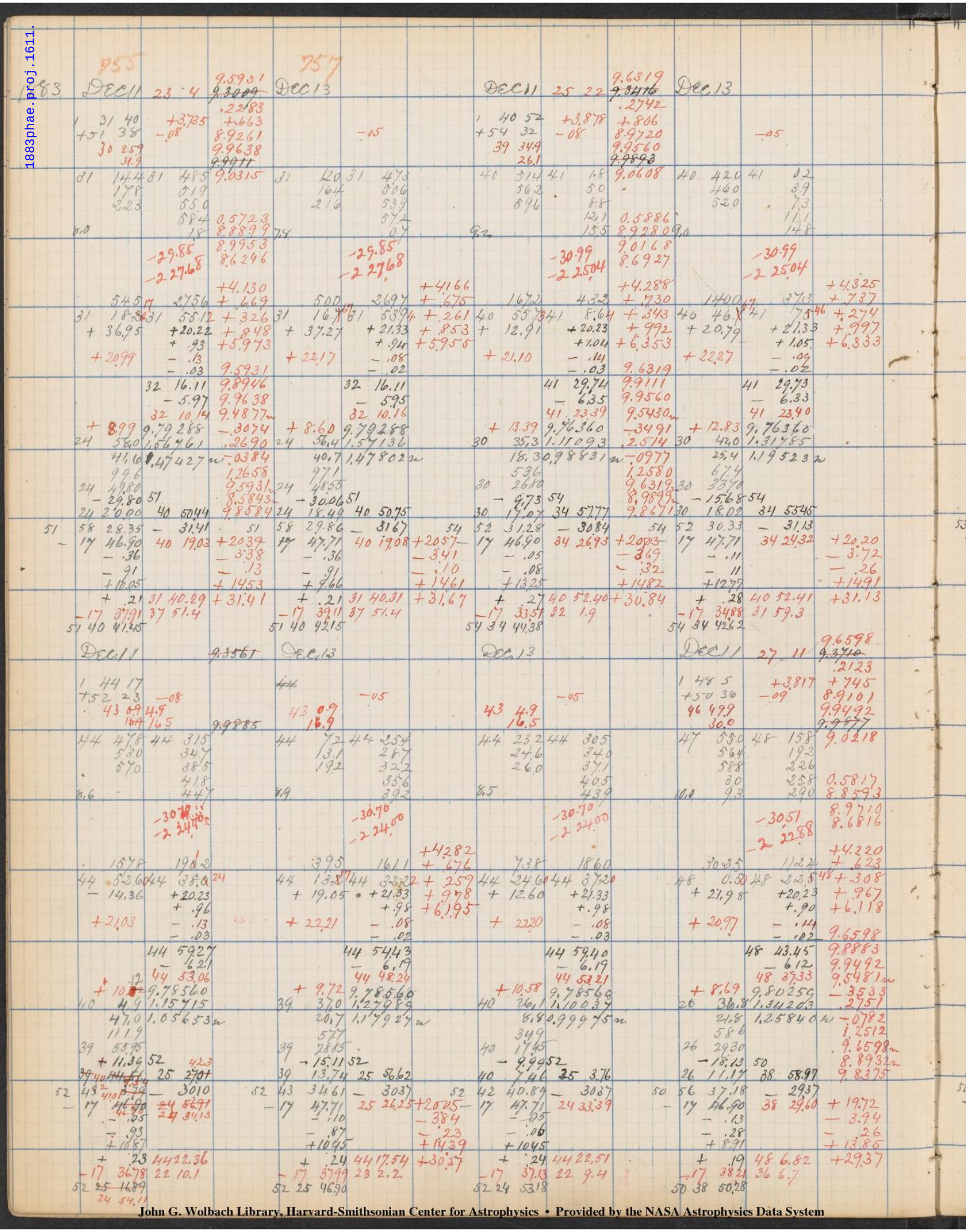
1883phae.proj.1611.

757

755

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1883phae.proj.1611.



John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1003phae.proj.1611.

755

Dec 11 25 33

757

Dec 11 26 2

Dec 13

Dec 11 26 14

Dec 13

Dec 11 28 7

Dec 13

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

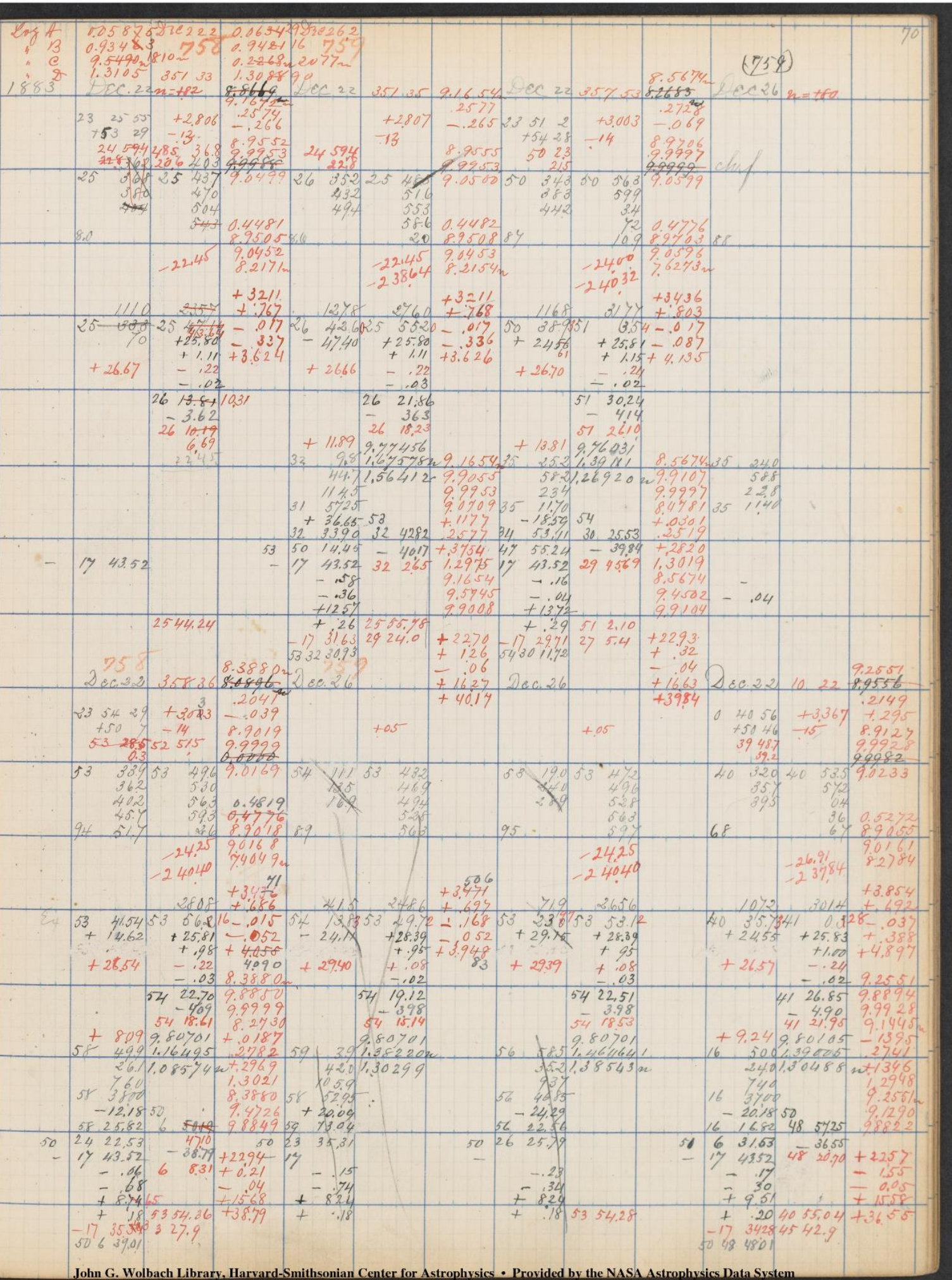
1883phae.proj.1611.

1883 Dec 13

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

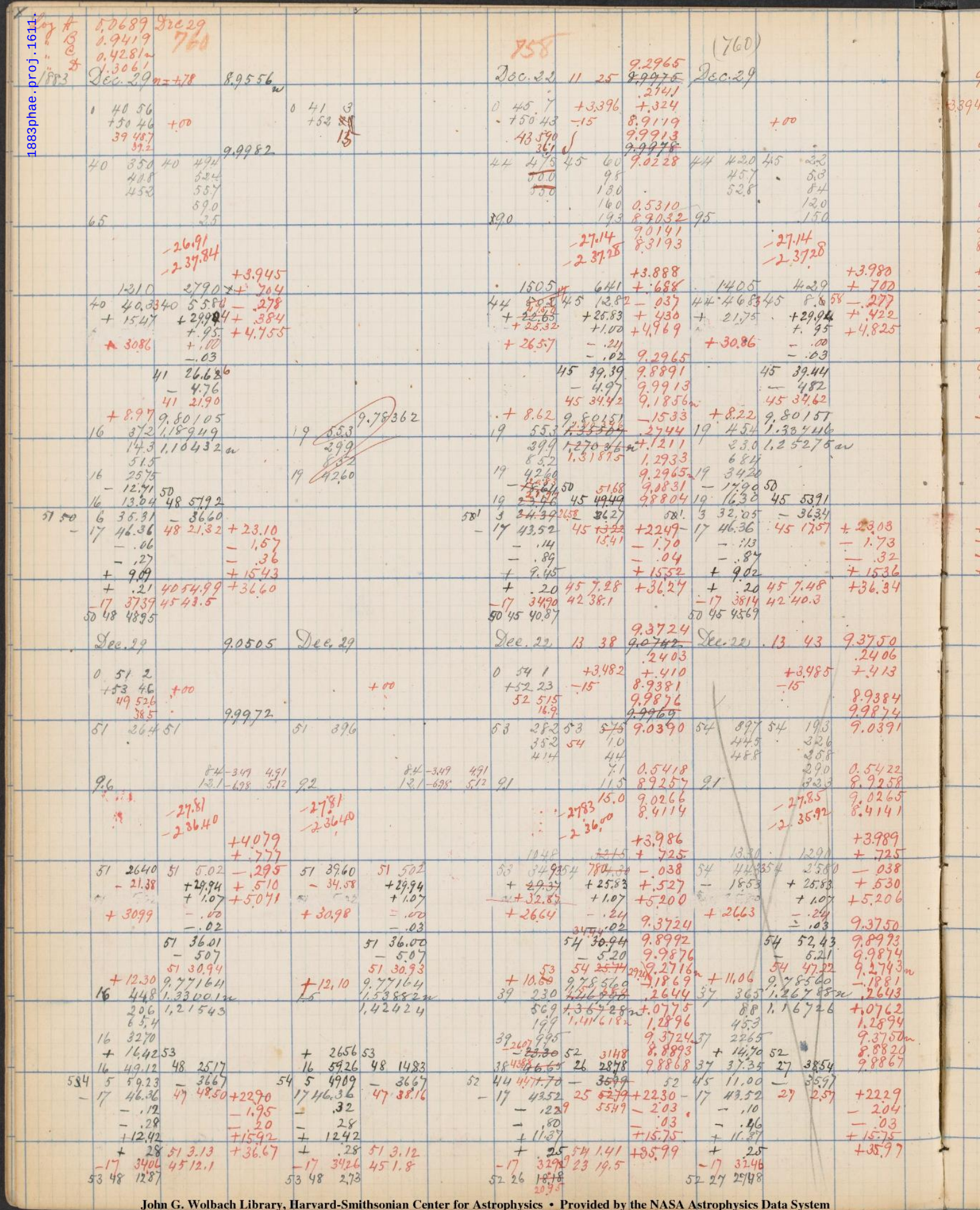
1003phae.proj.1611.

(758)



John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1883phae.proj.1611.



John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1003phae.proj 1611.

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1883phae.proj.1611.

760

1883 Dec. 29 9.0967

758

Dec. 22 16 27 9.4521 9.4557 .2863 +.548 8.9841 9.9818 9.9955

Dec. 29

Dec. 22 17 33 9.4793 9.1836 .2860 +.583 8.9838 9.9793 9.9977

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1983phae..proj..1611.

760

Dec 29

758

Dec. 22 19 19

Dec. 29

Dec. 22 20 1

Dec. 29

Dec. 22 22 51

Dec. 29

Dec. 22 25 33

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1883phae.proj.1611.

760

1883 Dec. 29 9.3446

1 41 34
+53 17 −.01
40 17.5
11.3

41 40 41 336
100 371
150 405
443
8.3 480

−30.74
−2 24.88
+4.508
+.707
2.904 2034

41 19 41 40 −.270
+31.01 +29.91 +.974
+1.05 +5.919
+30.92 −.02
−.02

42 11.60
−5.92
42 5.68
+11.86 9.78658
45 242 1.49150

59.7 1.39186
23.9
45 11.95
−24.65 53
44 47.30 20 2655

53 38 1.05 − 32.29 50
− 17 46.36 19 50.26 +2.119
−.25 −3.77
−.04 +.23
+11.88 +14.64
+.27 41 34.94 +32.29
−17 34.50 17 29.4
53 20 14.69

9.6723
9.3846
.2028
+.750
8.9006
9.9457
9.9868

Dec. 22 28 3

1 57 35
+50 0
50 18.9
49 53.7

+3.822
−.16

52 4.0 51 42.1
45.4
48.8
52.0 0.5823
55.2 8.8463

8.9

−3.055
−2 21.68

52 −5.26
12.60
−5.94
52 6.06
+8.30 9.80807
2 402 1.22167

205 1.10654
60.7 1.19043
2 30.35
+12.58 50
2 45.13 2 30.00
45.83 27.28

50 20 25.05.22 −.3037
−17 43.52 1 54.21
−.06
−.48
+.866
+.18 51 35.51
−17 35.22 59 35.5
50 2 18.98

758

Dec. 22 26 12 9.6449
9.3554
.2056
1 44 13 +3.781 +.709
+50 11 −.16 8.9034
42 57.9 9.9523
47 9.9886

43 50.3 44 16.1 9.0178
54.9 19.0
50.1 22.7
23.8 0.5776
7.0 29.0 8.8563

8.9707
8.6627
−3.022
−2 24.08
+4.328
+.618
1653 11.26

43 55.10 44 22.52 −.033
+27.42 +25.85 +.940
+0.98 +5.853
+26.55 −.25 9.6449
−.03

44 49.07 7.8856
−5.85 9.9529
44 43.22 9.5305
+8.39 9.80641 −.3392
52 28.0 1.43807 −.2776

3.0 1.35826 −.0616
31.0 1.2549
52 15.50 9.6449
−22.82 50 8.7896
51 52.68 13 20.54 9.8385

50
30 55.67 − 30.90
17 43.52 12 49.64 +2.059
−.20 −.380
−.43 +.02
+8.84 +14.09

+.18 44 13.00 +30.90
−17 35.13 10 25.6
50 13 12.15

Dec. 22 28 8 9.6735
.2031
+3.823 +.753
−.16 8.9909
99454

52 14.5 51 56.8 9.0163
20.3 0.0
24.9 8.5
6.4
9.5 0.5826
8.9 8.8463

−3.056
−2 21.60

52 29.49 9.8846
−5.95 9.9454
52 23.54 9.5581
+8.36 9.80807 −.3615
2 18.8 1.22167 −.2786

1.2352 −.0829
12.2 1.4 1.2474
6.0 1392 9.6735
+16.73 50 8.9186
2 22.83 2 50.36 9.8300

50
20 25.52 − 30.02
17 43.52 2 20.34 +2.023
−.08 −4.06
−.40 +.03
+8.66 +13.82
+.18 51 53.28 +30.02
−17 35.14 29 58.7
50 2 4200 0 15

Dec. 29 9.6622
9.3758
.2325
+.785
8.9303
9.9485
9.9875

1 48 48 +3.857 −.01
+51 54 −.16
47 31.7
48.3

48 33.2 48 52.9 9.0341
39.2 56.2
45.0 59.6
30
.63 0.5862
97 8.8788

−30.22
−2 24.08
+4.431
+.628
1655 9.05

43 49.1 44 11.8 −.251
55.8 14.8 +.930
0.6 18.2 +5.738
21.6
24.4

−3.022
−2 24.08
+4.328
+.618
1655 9.05

43 55.15 44 18.10 −.251
+22.95 +29.91 +.930
+.93 +5.738
+30.80 −.02
−.02

44 48.90
−5.74
44 43.16
+8.13 9.80641
52 18.5 1.36078

53.8 1.28097
14.3
52 7.15
−19.10 50
51 48.05 13 22.07 9.8385

31 0.30 − 31.33 52
17 46.36 12 50.74 +2.108
−.14 −3.86
−.40 +.16
+8.48 +13.95 +31.33
+.19 44 12.94
−17 38.23 10 26.7
50 13 13.94

Dec. 29

−.01

50 18.9
53.7

52 10.8 51 52.5
16.5 55.6
21.4 58.8
8.7 3.0
5.4

−3.055
−2 21.68
+4.478
+.614

52 11.93
−5.84
52 6.09
+7.96 9.80807
2 46.8 0.91006

25.8 0.83194
7.26
36.30
+6.79 50
2 43.09 2 26.86

20 5.26 − 30.53 50
17 46.36 1 56.33 +2.073
−.02 −4.11
−.40 +.22
+8.29 +13.69 +30.53
+.18 51 35.54
−17 38.40 59 34.6
50 2 18.90

Dec. 22 27 21 9.6622
9.3758
.2325
1 48 48 +3.857 +.785
+51 54 −.16 8.9303
47 31.7 9.9485
48.3 9.9875

48 33.2 48 52.9 9.0341
39.2 56.2
45.0 59.6
30
.63 0.5862
97 8.8788

−30.83
−2 22.64
+4.415
+.651
1174 29.80

48 39.3 48 59.0 −.034
+20.47 +25.85 +1.016
+1.05 +6.048
+26.61 −.26 9.6622
−.03

49 28.21 9.8962
−6.05 9.9485
49 20.16 9.5584
+10.38 9.79031 −.3617
8 22.6 1.31112 −.2674

7.3 1.21521 −.0943
39.9 1.2505
8 19.95 9.6622
−16.41 51 8.9745
8 3.54 57 11.64 9.8447

14 44.81 − 30.76
17 43.52 5 40.91 +2.038
−.11 −3.95
−.63 +.03
+10.89 +14.30
+.23 48 49.33 +30.76
−17 33.14 54 18.3
51 57 1.29

Dec. 29

−.01

50 36.9
54.0

52 10.8 51 52.5
16.5 55.6
21.4 58.8
8.7 3.0
5.4

−3.056
−2 21.60
+4.482
+.614

52 16.13 51 58.9
−17.27 +29.90
+.93
+30.78 −.02
−.03

52 26.64
−5.84
52 23.80
+8.01 9.80807
2 12.5 1.23729

51.6 1.15914
4.1
2.05
+14.43 50
2 16.48 2 53.52

20 31.87 − 30.49
17 46.36 2 23.03 +2.072
−.08 −4.13
−.38 +.22
+8.29 +13.68
+.18 51 53.24 +30.49
−17 38.35 0 1.4
50 2 45.51

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1883phae.proj.1611.

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1883phae.proj.1611.

760

1883 Dec. 29

758

Dec. 22 29 10

Dec. 29

Dec. 29 29 49

Dec. 22

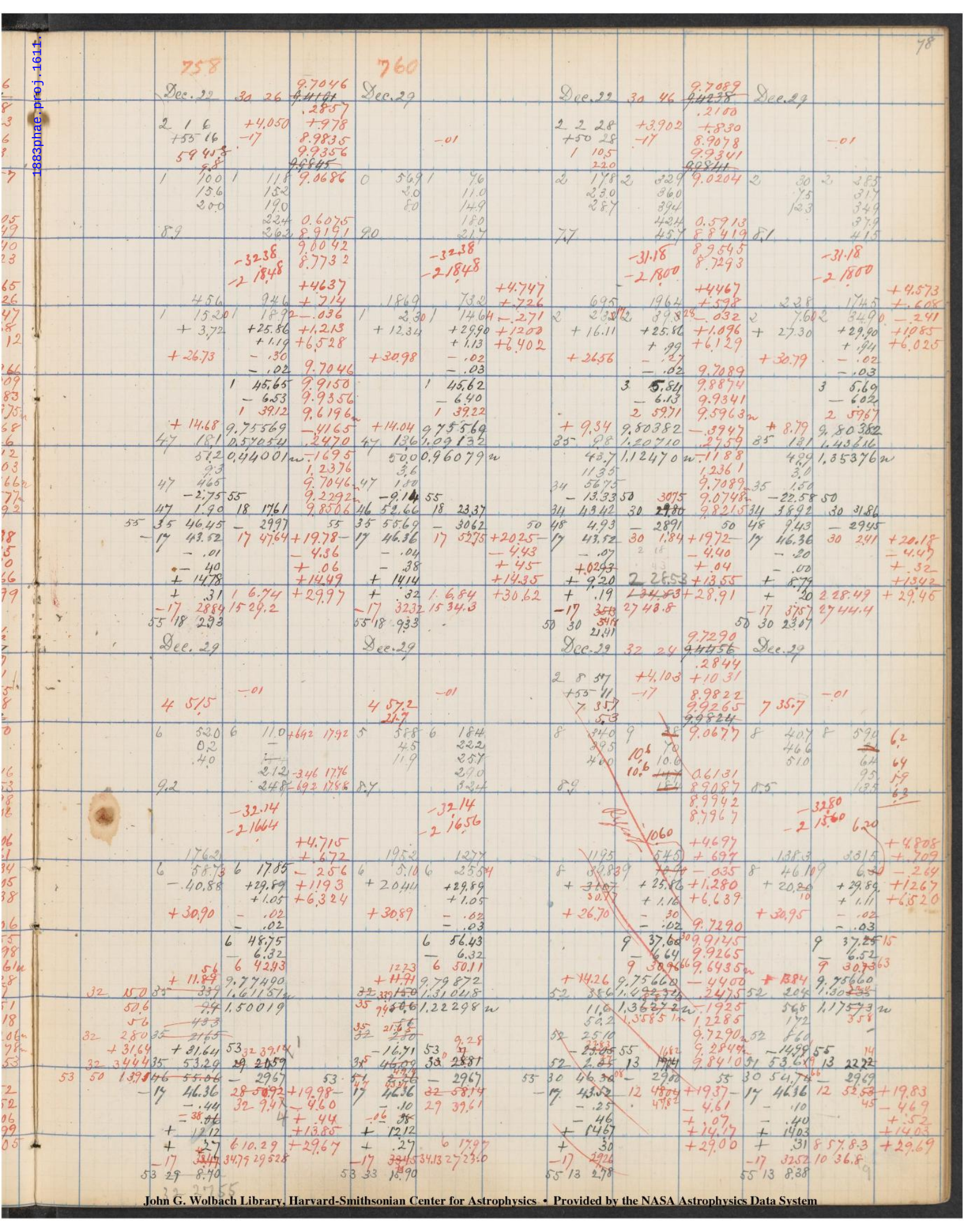
Dec. 22 31 1

Dec. 29

Dec. 22 31 42

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1883phae.proj.1611.



John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1883phae.proj.1611.

758

760

Dec. 22 32 54 9.7349 9.4522 .2018 — Dec. 29

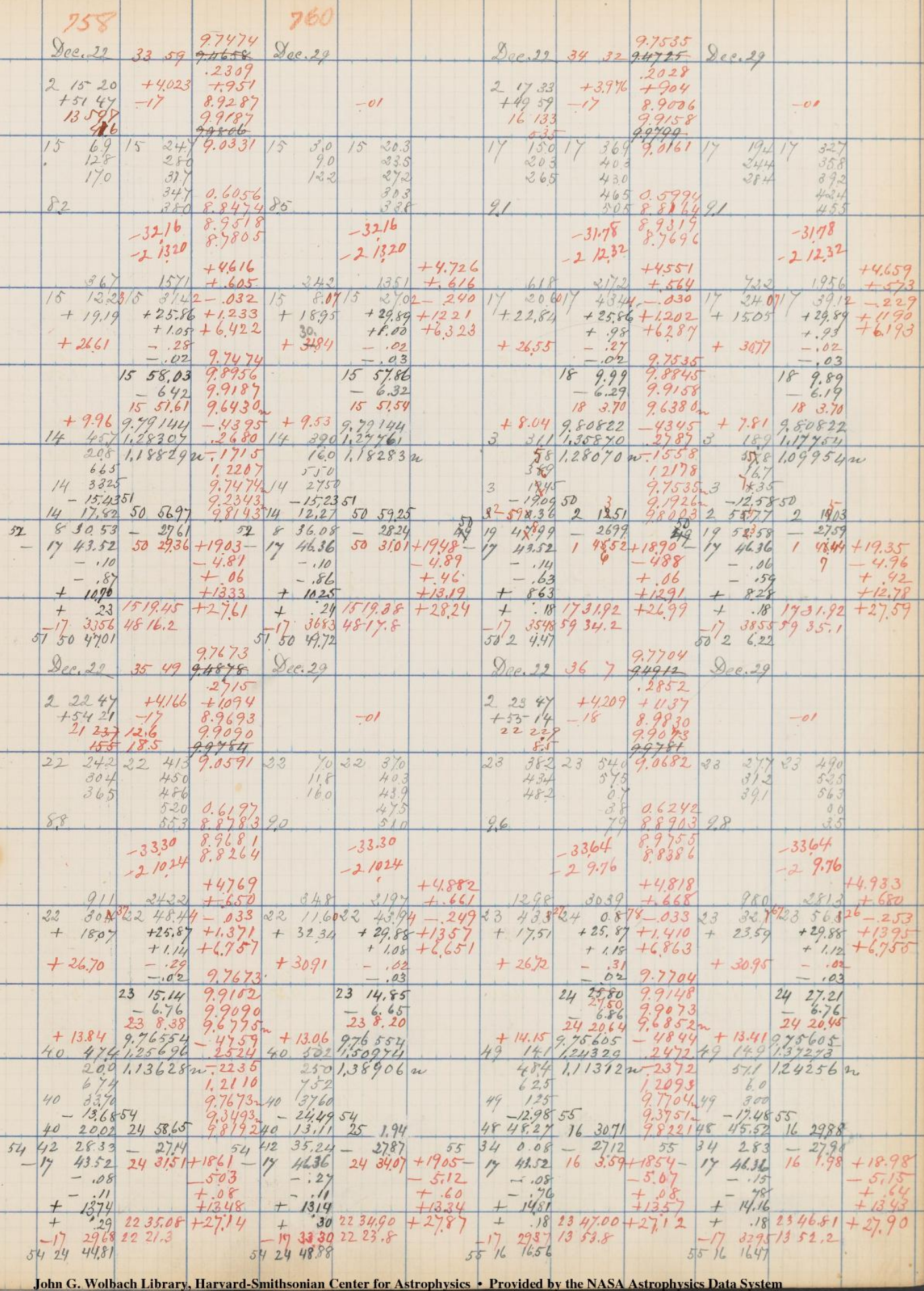
Dec. 22 33 8 9.7377 9.4556 .2595 — Dec. 29

Dec. 22 34 49 9.7566 9.4760 .2857 — Dec. 29

Dec. 22 35 31 9.7641 9.4843 .2133 — Dec. 29

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1883phae.proj 1611.



John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1883phae.proj.1611.

758

1883 Dec. 22 96 24 9.7734 9.4947 .2362

2 24 56 +4.080 +1.038
+51 45 -18 8.9280
23 34 7 9.9057
3 2 4 9.9777

24 40 6 25 40 9.0326
44 4 82
48 5 120
150 0.6107
9.6 180 8.8337
8.9383
-.3262 8.8060
-2 9.28
+.4671
1335 572 +.387

24 44 60 25 11 44 -.031
+ 26.94 +25.86 +1.308
+1.04 +6.535
+26.59 -.29 9.7734
-.02

25 38.03 9.8953
-.654 9.9057
25 31.49 9.6687m
+10.27 9.79176 -.4663
17 39 5 1.43040 .2683
15 2 1.33594m -.1980
5 4 7 .2077
17 27 35 9.7734m
-21.67 51 9.2967m
17 5 68 48 9.42 9.8010

52 5 42.64 -.2637 52
-17 43.52 47 43.05 +.1847
-.19 -.510
-.48 +.07
+.1071 +1293
+.23 24 58.87 +26.37
-17 33.25 45 33.8
51 47 59.15

Dec. 22 37 57 9.7889 9.5124 .2025

2 31 7 +4.052 +.980
+49 59 -18 8.9003
29 46 6 9.8968
5 3 4 9.9757

31 54 81 2 9.0160
10 4 24 3
16 3 27 9
30 7 0.6077
9.0 8.7941
8.9128
8.8049
+4.639
321 +.539

31 10 0 31 27.63 -.029
+16.93 +25.87 +1.304
+.98 +6.453
+26.53 -.28
-.02 9.7889

31 54.18 9.8844
-.645 9.8968
31 47.73 9.6733m
+8.65 9.80822 -.4713
5 3 78 1.22866 .2787
12 7 1.15066m -.1926
5 0 3 1.1588
5 25 25 9.7889
-14.15 50 9.2847m
5 11 10 0 2 38 9.7812

50 17 37.25 -.2522 50
17 43.52 59 37.16 +.1809
-.08 -.5.29
-.08 +.07
+8.65 +1235
+.18 +2522
-17 34.87
49 59 53 73

760

Dec. 29

-.01

-.3262 9.28
-2

+4.782
346 +.597

24 38 2 25 0 6 -.233
+25.00 +29.88 +1294
+.99 +6.440
+30.82 -.02
-.03

25 37.74
-.644
25 31.30
+9.87 9.79176
17 31 9 1.39794
9.0 1.30348m
409
17 20 45
-20.11 51
8.34 48 11.52

52 5 48.01 -.2705 52
17 46.36 47 44.47 +.1891
-.17 -5.19
-.44 +.53
+10.24 +1280
24 24 55.68 +27.05
-17 31.99 45 35.2
51 48 1.65

Dec. 29

-.01

29 466

30 5 43 31 9 3
15 12 8
60 15 8
19 2
9 2 2 24

-.3240
-2 6.72

+4.749
795 +.548

31 0 6 0 31 15 9 0 -.219
+15.30 +29.88 +1.291
+.93 +6.369
+30.76 -.02
-.03

31 46.66
-6.37
31 40.29
+7.58 9.80822
4 2 10 1.18469
5 7 2 1.10669m
10 1 0
-12.78 50
57.32 1 1225

18 51.03 -.2689 53
17 46.36 0 46.36 +18.52
-.06 -5.38
-.80 +.52
+8.26 +12.23
+.18 31 7.89 +25.89
-17 38.78 58 39.6
50 1 4.67

Dec. 22 37 19 9.7826 9.5050 .2289

2 28 38 +4.099 +1027
+57 41 -18 8.9267
27 16.2 9.9095
3 5.8 9.9765

28 16 0 28 43 0 9.0318
22 0 46 5
24 0 49 9
28 0 53 1 0.6127
8.8 56 5 8.8272
8.9323
-.3275 8.8144
-2 7.76
+.4692
2490 +.578

28 2250 -.030 28 22 6 3 28 45 5 48 -.229
+27.30 +25.87 +1.333 +18.98 +29.88 +1.320
+1.04 +6.573 +.99 +6.483
+26.60 -.28 +30.82 -.02
-.62 9.7826 -.03

29 16.44 9.8948
-.652 9.9095
29 9.83 9.6774m
+10.07 9.79240 -.4758 +9.78 9.79240
23 9 4 1.43616 .2688 22 6 5 2 1.27830
44 5 1.34234m -.2070 32 8 1.18448m
11 3 9 1.2025
22 5 6 9 5 9.7826
-22.00 51 9.3160m -15.29 51
22 34.95 42 39.95 9.7953 22 28.71 42 43.06

52 0 13.40 -.2587 52 0 19.64 -.2656
-17 43.52 42 14.08 +.1825 -17 46.36 42 16.50 +18.68
-.19 -5.21 -5.30
-.55 +.07 +.55
+1059 +1276 +1016 +1263
+.22 28 37.08 +25.87 +.23 28 37.07 +26.56
-17 33.45 40 6.3 -17 36.58 40 8.4
51 42 29.88 51 42 33.28

Dec. 29 38 12 9.7913 9.5118 .2521

2 32 7 +4.177 +1105
+53 40 -18 8.9499
30 43.7 9.8953
4.2 9.9754

32 11 32 13.7 9.0465 31 48 3 32 9 4
7 0 17 4 5 4 6 13 0
12 3 21 0 58 6 16 3
24 6 0.6209
9.2 27 6 8.8452 9.8 23 0
8.9418
-.3339 8.8378
-2 6.24
+4.782
204 1043 +.602 1615 814 +.613

32 6.80 32 20.98 -.031 31 58.83 32 16.28 -.234
+14.06 +25.87 +1.407 +22.45 +29.88 +1.393
+1.10 +6.760 +1.05 +6.668
+26.65 -.30 +30.88 -.02
-.02 9.7913 -.03

32 47.51 9.9035 32 47.16
-6.76 9.8953 -6.67
32 40.75 9.6948m 32 40.49
+11.90 9.77778 -.4952 +11.29 9.77778
53 3 48 1.14799 .2599 53 3 3 9 1.35122
9 2 1.03955m -.2353 10 2 1.24278m
4 4 0 1.1973
5 3 2 2 5 9.7913
-10.95 53 9.3716m -17.44 53
53 11 0 5 12 5 6 8 9.7988 53 4.56 12 8 7 2

29 37.30 -.2565 53 29 43.79 -.2641
-17 43.52 11 40.03 +18.03 -17 46.36 11 42.31 +18.46
-.05 3993 -5.32 -.13 -5.41
-.65 +.08 -.65 +.63
+12.34 +12.86 +11.80 +12.73
+.21 32 87.36 +25.65 +.27 32 7.10 +26.41
-17 31.62 9 33.9 -17 35.07 9 36.0
53 11 53.98 53 11 57.43

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1883phae.proj 1611

761

1884 Jan. 3 0 31 7.9551 7.6286 .2513 Jan. 3 1 20 8.3668 8.0685 .2242 Jan. 3 1 28 8.4082 .2151 Jan. 3 2 6 8.5640 8.1098 .2511

0 1 35 +3.088 +.016 0 4 53 +3.111 +.039 0 5 22 +3.114 +.042 0 7 59 +3.137 +.065
+53 6 −.06 8.9491 +51 23 −.06 8.9220 +50 50 −.06 8.9129 +53 3 −.06 8.9489
0 333 3 51.0 4 20.7 190 6 569 8.9999
52 59 16.1 49 869 40.6 9999 550 180 0.0000

1 25 1 299231 9.0459 4 14.9 4 42.0 9.0290 5 31.0 5 104 9.0235 7 16.8 7 21.4 9.0458
70 21.0 45.0 353 135 20.5 35.2
125 .6296 25.4 48.5 394 165 29.6 38.5
.6330 52.0 197 32.0
8.4 .7365 8.7491 92 55.0 230 8.9128 90 8.9486

9.0459 −27.77 −3 0.445 7.0010 +.577 + .763 61.3 −27.98 −3 0.445 9.0289 7.3958 +.581 +.717 1057 831 −28.00 −3 0.445 9.0234 7.4316 +.582 +.702 664 −28.21 −3 0.36 125.1 7 2502 +27.47 9.0455 7.6098 +.586 +.762
220 1482

1 7.331 29810 −.480 4 20.43 4 48.50 −.461 5 35.235 1662 −.456 7 22.13 7 52.49 −.479
+ 22.337 +32.770 + .020 + 28.07 + 32.770 +.049 − 18.61 +32.770 +.054 + 30.36 + 32.770 +.081
+ 8.16 +0.880 + 1.10 +0886 + 1.07 +0882 + 1.16 +0.950
+ 33.73 − .10 +33.68 − .10 +3364 − .10 + 33.74 − .10
− .03 7.9551 − .02 8.3668 − .03 8.4082 − .02 8.5640

2 3.3743 9.9032 5 22.18 9.8930 5 50.26 9.8895 8 26.23 9.9031
− 0.88 0.0880 − 089 9.9999 − 0.88 9.9999 − 0.95 9.9997
2 2.4955 7.8583 5 21.29 8.2598 5 49.38 8.2977 8 25.28 8.4671
+ 11.44 9.77846 −.0072 + 8.81 9.79526 −.0182 + 8.31 9.80043 −.0198 + 10.99 9.77862 −.0293
56 154 1.34886 .2602 39 270 1.44821 .2705 14 454 1.26975 .2740 57 522 1.48216 .2603

609 1.24113 +.2530 140 1.35728 +.2523 223 1.18396 +.2542 28.0 1.37456 +.2310
6.3 91 1.3020 5.10 1.3019 80.2 1.3017
56 315 7.9551 39 2550 8.3668 14 3845 3385 8.4082 57 4010 8.5640
−17 4253 32 9.4031 −22.77 51 6 6 9.4019 45.27 50 20 9.4052 − 23.69 53 9.3636
2 55 45.730 9 27.29 9.9032 39 2.73 25 7.76 9.8929 14 50.12 50 15.77 9.8894 57 1641 7 5616 9.9028
53 27 2.625 − 1847 51 43 45.62 − 18.50 50 7 54.23 − 1784 53 25 31.94 − 1834
− 17 46.77 9 8.82 + 3.74 − 17 46.77 25 49.66 +3.74 − 17 46.77 49 5793 +3.74 − 17 46.77 7 3.782 +3.74
− .13 5 − .08 − .21 − .20 50 2.93 − .22 − .21 − .31
− .21 − .09 − .84 − 1.09 − .18 − 1.10 − 51 − 1.00
+ 1152 +1592 + 963 +1555 + 967 +1542 + 1148 +1591
+ .26 1 34.78 +18.47 + .23 45 3.31 +18.00 + 21 5 21.38 +17.84 + .26 7 57.07 +18.34
−17 35.33 6 8.4 −17 37.86 22 49.2 −17 38.46 47 2.5 −17 35.78 4 37.5
53 9 15.85 51 25 5885 60 50 .746 53 7 45.17

8.5809 Jan. 3 2 11 8.7283 Jan. 3 3 4 8.7283 Jan. 3 3 21 8.7667 Jan. 3 3 29 8.7836
8.2793 .2702 .2809 .2809 .2814
0 8 12 +3.143 +.071 0 N 6 +3.174 +.102 0 13 11 +3.184 +.112 +3.188 +.116
+54 17 −.06 8.9680 +54 59 −.06 8.9787 +53 1 −.06 8.9787 8.9792
9.9997 11 552 9.9994 12 7.2 9.9993 9.9992
9.9999 526 9.9998 54 546

8 24.2 8 24.7 9.0582 12 28.12 12 37.7 9.0653 13 20.8 13 43.5 9.0653 13 25.2 13 16.3 9.0657
30.0 6.1 34.2 7.5 25.0 47.6 28.8 20.4
36.5 9.0 38.2 a-1 11.3 32.3 51.0 58.5 23.4
1.30 14.7 37.4
8.6 1.64 0.4973 writing # 16.3 0.5016 8.8 54.3 0.5030 8.4 30.8 0.5035
8.9677 8.9781 8.9780 8.9784

9.0579 9.0647 9.0646 9.0649
−28.26 7.6391 7.7936 7.8420 7.8493
−3 0.33 12 555 1110 Report
6 −28.70
+ .583 +.593 +.595 +.595
907 4.89 + .796 1009 +.816 781 2.542 +.816 1565 1182 +.816

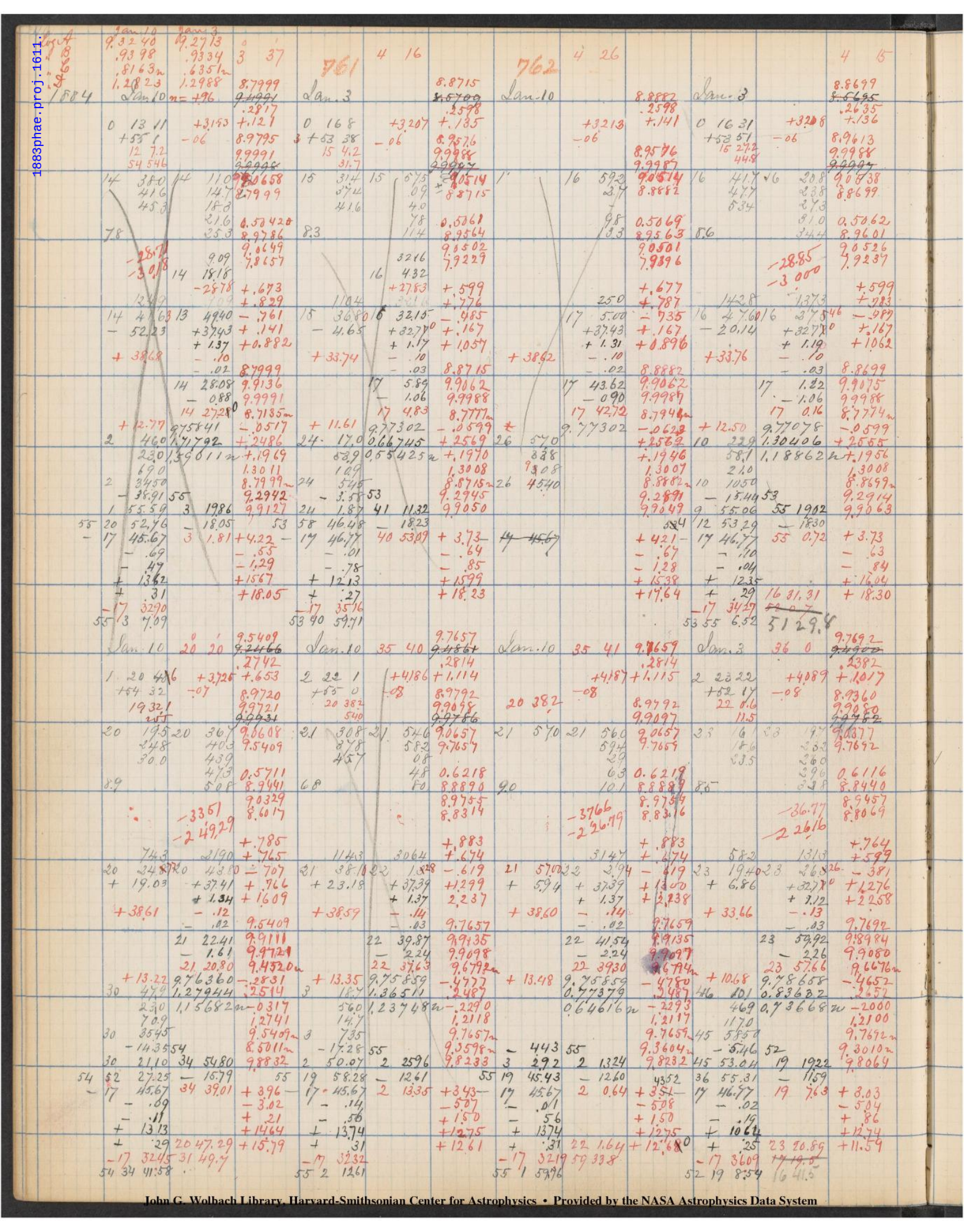
8 30.238 9.8 38 − .493 12 33.63 11 42.35 −.501 13 26.03 12 50.84 −.501 13 52.47 13 23.64 −.501
− 20.85 + 32.770 + .087 − 50.28 +32.770 +.124 − 35.19 +32.770 +.138 − 28.53 +32.770 +.141
+ 1.21 +0.977 + 1.24 +1.032 + 1.24 +1.048 + 1.24 +1.051
+ 33.79 − .10 +3381 − .10 + 33.82 − .10 + 33.81 − .10
− .02 8.5809 − .03 8.7283 − .02 8.7667 − .03 8.7836

8 43.17 9.9098 12 17.16 9.9134 13 24.66 9.9134 13 57.45 9.9135
− 0.98 9.9997 − 1.03 9.9994 − 1.05 9.9993 − 1.05 9.9992
8 42.19 8.4907 12 16.13 8.6417 13 23.61 8.6801 13 56.40 8.6971
+12.12 9.76625 − .0309 +12.42 9.75877 − .0438 +12.74 9.75841 − .0479 +13.20 9.75841 − .0498
44 46.1 1.31911 .2529 4 33.0 1.70140 .2489 4 42.9 1.54602 .2489 2 43.6 1.45530 .2487
22.8 1.19914 +.2220 12.5 1.57395 +.2051 19.9 1.41861 +.2010 19.7 1.32749 +.1989
68.9 1.3017 47.5 1.3014 62.8 1.3013 63.3 1.3012
44 34.45 8.5807 4 23.45 8.7283 4 31.40 8.7667 2 31.65 8.7886
+ 15.82 54 9.3464 + 37.49 55 9.3120 + 26.22 55 9.3032 + 21.26 55 9.2986
44 50.27 20 2343 9.9095 5 1.24 0 1276 9.9128 4 57.62 0 1670 9.9127 2 52.91 2 2187 9.9127

54 37 58.08 − 18.60 5 17 47.11 − 1867 55 17 50.73 − 1864 55 19 55.44 − 1863
− 17 46.77 20 4.83 +3.74 − 17 46.77 59 54.09 +3.74 − 17 46.77 59 58.06 +3.74 − 17 46.77 2 3.24 +3.74
− .11 − .33 − .64 − .46 − .31 − .50 − .22 − .52
− .87 − .96 − .84 − .89 − .85 − .87 − .48 − .86
+ 12.80 +16.15 + 13.59 +16.28 + 13.59 +14.27 + 13.59 +14.27
+ .30 8 13.93 +18.60 + 31 +18.67 + 31 +18.64 + 31 +18.63
−17 3465 17 4.5 −17 3435 −17 3403 −17 3357
54 20 11.31 55 0 0.34 55 0 3.96 55 2 8.67

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1883phae.proj.1611.



John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1883phae.proj 1611

761 Jan. 3

762 Jan. 10

Jan. 3

Jan. 10

Jan. 10

762 Jan. 10

761 Jan. 3

Jan. 3

Jan. 10

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1883phae.proj.1611.

761

1884 Jan. 3 37 15 9.7820

761

37 15

Jan. 3 37 18

762

Jan. 10 37 18 9.7825

Jan. 3 37 34 9.7851

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1883phae.proj 1611

762

Jan. 10

761

Jan. 3

Jan. 10

Jan. 3

Reject

Jan. 10

Jan. 3

Jan. 10

Jan. 3

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1883phae.proj.1611.

762

1884 Jan. 10 40 37 9.8136 45403 12302 9.8803 9.9721

741

Jan. 3 41 26 9.8207 9.5486 .2245 +1.110 8.9223 9.8749 9.9710

Jan. 10

Jan. 3 42 14 9.5566

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1003phae.proj.1611.

762

Jan. 10

761

Jan. 3

Jan. 10

Jan. 3

Jan. 3

Jan. 10

Jan. 3

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1883phae.proj.1611.

761

762

Jan. 3 45 35 Jan. 10 Jan. 3 46 53 Jan. 10

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1983phae.proj 1611

761

762

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1883phae.proj.1611.

761

762

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1883phae.proj.1611

761

762

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1883phae.proj.1611.

761

1884 Jan. 3 57 42 9.9278 9.6856 .2330 +4.517 +1.445 8.9308 9.7278 9.9422

3 50 6 +51 37 48 364 538 −09

Jan. 3 57 48 9.9275 9.6842 .2448 +4.559 +1.487 8.9426 9.7266 9.9422

3 50 52 +52 44 49 214 402 −09

49 475 538 1.0 9.1 50 10.0 13.0 16.8 20.2 23.7 9.0344 0.6548 8.6586

50 42.3 47.9 5 46.5 50 [illegible] 36.4 a+1 39.9 [illegible] 46.4 9.0418 0.6589 8.6692

8.7622 8.9614 −4963 −13.666 +.843 +.391

−4104 −13.612 50 40.14 +27.25 7.0.50 +.832 +.401

16.23 8.37 1466

49 54.10 + 22.64 +33.64 50 16.74 + 32.78 + 1.11 − .15 − .03 +1.821 +2805 9.9270 9.8964 9.7278

50 48.[illegible] − 8.73 +18.18 +33.68 50 [illegible] + 32.78 + 1.14 − .15 − .02 +1.854 +2834 9.9275 9.9008 9.7266

50 50.38 − 2.80 50 47.58 +10.13 9.78983 6 55.9 1.35488 8.8234 −.6559 .2672 9.8283 −.6734 .2627

51 [illegible] − 2.83 51 37.90 + 11.285 9.78213 20 57.8 1.25959 −.4187 1.0286 9.9275 9.6135

8.20 8.89 1.25849 −.3987 1.0298 9.9270 9.6006 6 44.45 − 18.13 51 6 26.32 58 45.39 9.6242 −.4119 9.6274

20 34.1 9.19 1.15550 20 45.95 + 14.31 52 20 31.64 44 +2 16.71 − .494 9.6135

52 16 22.03 − 485 − 17 46.77 58 40.54 − .14 − .32 + 10.35 + .24 −17 36.64 51 58 35.26 +.200 −7.25 +1.72 +8.38 +4.85 50 6.95 57 3.9

52 [illegible] − 17 46.77 − .09 − .15 + 11.23 + .26 −17 35.52 52 44 30.20 +1.99 − 7.26 + 1.77 + 8.44 + 4.94 50 56.86 43 0.1

ex deltas

Jan. 10 27 38 9.6663 9.3781 .2079 +.748 8.9057 9.9474 9.9872

763

Jan. 16

Jan. 16 27 49 9.6690 .2085 +.754 +3.826 8.9063 9.9467

Jan. 16

49 308 368 418 49 492 523 555 590 620 9.0192 0.5821 8.8531 −34.36 −2.4002 +.805 +.621

49 280 326 387 49 453 487 520 552 580 −3436 −2.4002 +.885 +.604

50 447 575 50 269 300 333 345 400 9.0195 0.5827 8.8530 8.9662 8.6885 +.886 +.604

50 184 197 208 50 276 308 340 372 407

1094 2780 993 2592 1672 589

49 365 + 19.13 + 38.39 49 5560 + 37.40 + 1.15 − .13 − .03 −.607 +.928 +1.747 9.6663

49 331 + 18.74 + 41.84 49 51.84 + 41.03 + 1.02 − .19 − .02 −.776 +.886 +1.599

50 55.73 − 22.39 + 4.183 50 33.34 + 41.03 + 1.02 − .19 − .03 −.776 +.892 +1.606 9.6690

50 19.68 + 14.43 + 41.84 50 34.06 + 41.03 + 1.02 − .19 − .02

50 33.99 − 1.75 50 32.24 + 7.93 9.80519 1.28171 1.20068 9.8866 9.9474 9.5529 −.3572 −.2767 −.0805 1.2494 9.6663

50 33.68 − 1.60 50 32.08 + 8.37 9.80559 48 42.9 1.27277 17.9 1.19174 608 9.8058 9.8340 14.85

51 15.14 − 1.61 51 13.56 + 8.66 9.80519 41 57.9 1.35005 31.9 1.26902 698 41 44.90 + 18.58 50 42 3.48 23 11.16 9.8868 9.9467 9.5558 −.3596 −.2765 −.0831 1.2487 9.6690 8.9796 9.8335

51 15.90 − 1.61 51 14.29 + 8.74 9.80519 1.15927 1.07824 −11.97 41 32.93 23 43.79

50 39 37.62 − 1330 −17 45.67 − .10 − .63 + .847 + .19 −17 37.80 19 6.0 50 21 51.35 50 21 [illegible] 50 39 33.50 − 1334 −17 42.37 21 45.98 +3.74 −4.04 + .53 + 13.07 49 57.88 + 13.30 −17 34.00 19 6.1 50 21 51.13 50 40 44.87 − 1332 −17 42.37 22 57.84 + .13 − .30 + 8.91 + .19 −17 33.71 50 23 2.50 50 41 15.42 − 1332 −17 42.37 23 28.47 − .05 − .31 + 8.91 + .19 −17 33.63 50 23 32.05 +4.11 −3.93 + .68 + 12.48 49 57.72 + 13.34 +4.11 − 3.95 + .70 + 12.46 + 13.32

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1883phae.proj 1611

1884 Jan 10 — 763 Jan. 16 — 764 Jan. 17 — 762 Jan. 10

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1883phae.proj.1611.

762

1884 Jan. 10

763

Jan. 10

Jan. 16

Jan. 16

Jan. 10

Jan. 16

Jan. 17

Jan. 10

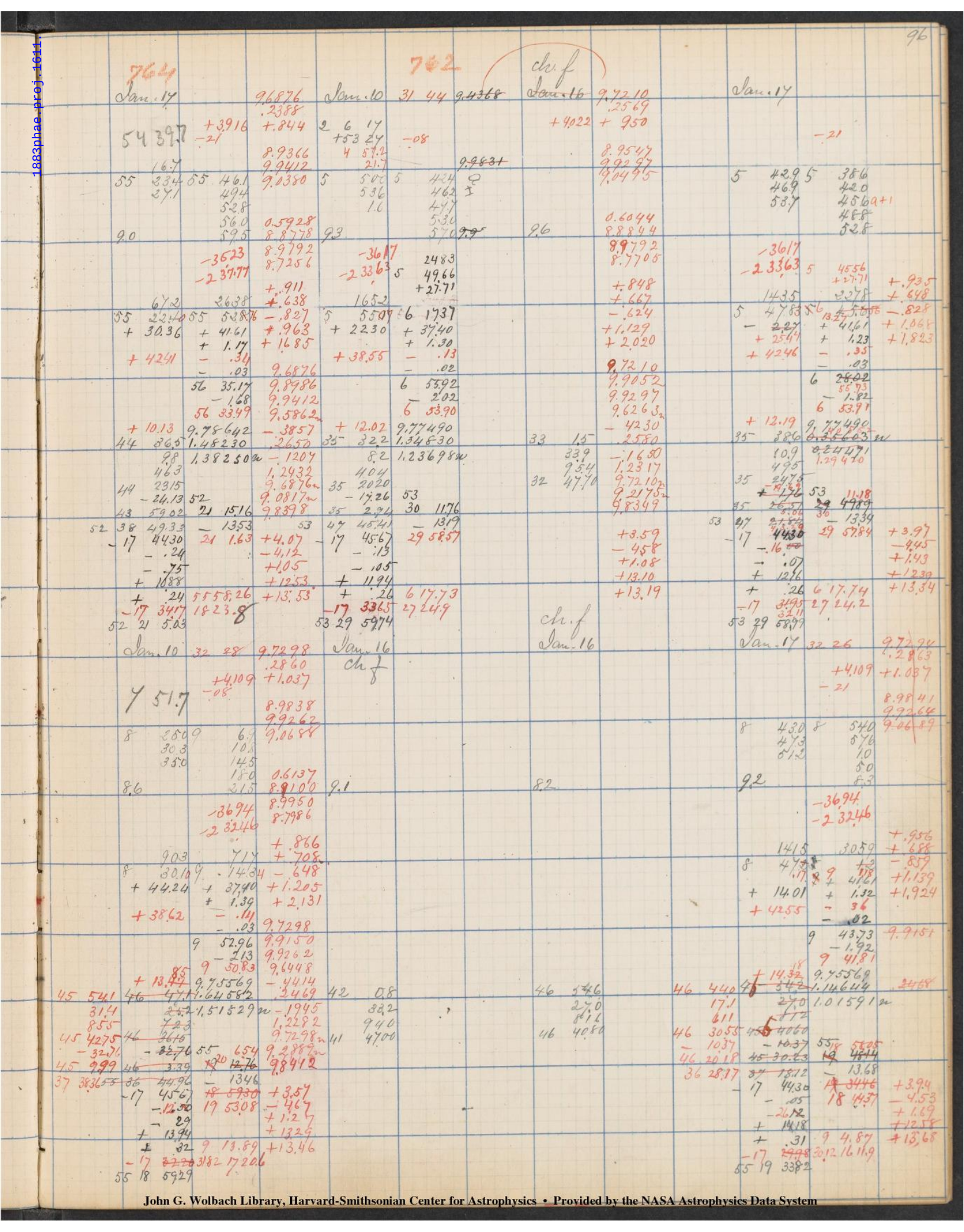
John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1883phae.proj.1611

764

762

ch. f



John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1883phae.proj.1611.

764

1884 Jan. 17 32 28 9.7298 9.4465 .2860 +1.

2 9 35 +53 16 -21 7 51.7 8.8838 9.9262

8 22.39 27 9.0688 30.7 66 35.8 10.5 138 8.6 171

-3695 -2 3246 +.956 +.687

8 29.60 10 14 -.858 + 40.54 4 41.61 + 1.32 -.36 -.03 +1.140 +1.925 + 42.54

9 52.68 9.9150 - 1.92 9 5076 + 13.84 95 9.75569 1.60788 .2469 45 542 46 44.0 270 812 45 4060 46 2055 - 38.02 5520 742 45 1158 46 0.53 19 18.33 37 5777 36 47.82 - 1366 -17 44.30 19 53.76 -.42 -.1726 + 14.18 + .31 -17 3049 1721.5 55 19 3.52 +3.94 -.454 +1.69 +12.57 +13.66

3

Jan. 10 3428 9.7528 .2056 +.909

2 17 33 +49 09 +3.981 -.08 16 16.8 58.5 8.9034 9.9162

16 360 403 436 17 65 100 130 161 194 9.0178 0.6000 8.8196 8.5

8.9340 8.7706 +.840 +.575

16 39.97 + 33.03 + 38.40 17 13.00 + 37.40 + 1.14 - .12 - .02 -.563 +1.130 +1.982 9.7528

17 51.40 - 1.98 17 49.42 9.8856 9.9162 9.6384 + 7.68 9.75569 52 118 1.51891 49.9 1.7 1.38838m -.1573 1.2182 9.7528m 9.1967m 52 085 - 24.46 50 51 36.39 13 33.97 9.8018 50 54 81 11.96 - 11.72 24 - 17 4567 13 22.26 - .30 .36 + 8.16 + .18 -17 3799 50 13 2629 +3.48 -4.93 +1.03 +12.14 +11.72

762

Jan. 10 32 49 9.7340 .2021 +.863

2 11 1 +49 56 +3.935 -.08 9 47.6 22.5 545 503 8.8999 9.9245

10 51.0 538 550 10 38.2 364 394 430 457 9.0156 0.5949 8.8244 9.2

-3540 -2 31.83 8.9401 8.7496 +.830 +.581

10 53.7 27 + 13.73 + 38.40 10 39.5 + 37.40 + 1.14 - .12 - .02 -.571 +1.076 +1.916 9.7340

11 17.94 - 1.92 11 16.02 9.8841 9.9245 9.6181m + 8.04 9.80867 6 24.1 1.13767m -.2791 1.0 2.51 1.06012 -.1359 1.2265 9.7340 6 1255 + 11.48 49 58 4669 9.1332m 9.8086 6 2403 16 24.32 - 12.05 58 3464 +.355 -4.72 +.89 +12.38 +12.05 - 4.50 16 2432 - 17 4567 - .05 - .22 + 813 + .18 1040.62 -17 3763 56 2.8 4958 3865

Jan. 17 34 32 9.7535 .2029 +.904

+3976 -.22 16 133 8.9007 9.9158

17 463 506 557 17 31.3 240 276 30.9 338 9.0167 0.5996 8.8165 9.3

-35.77 -2 2886 8.9320 8.7697 +.925 +.554

17 50.2 87 - 23.35 + 42.32 17 27.52 + 41.61 + 1.08 - .34 - .03 -.742 +1.066 +1.803 9.7535

18 8424 584 180 8.04 18 9.75569 2 465 1.36829m 22.0 685 2 3425 + 17.29 50 2 2 51.84 2 3040 19 56.81 - 11.84 17 44.30 2 7.86 - .14 - .44 + 8.29 + .18 -17 3641 50 2 12.51 9.7535 .2787 1.23776 -.1558 1.2178 9.7535m 9.1926m 9.8003 +3.84 -4.79 +1.35 +11.44 +11.84 1732.27 59 59.7

3

Jan. 17 32 54 9.7349 .2021 +.865

+3.937 -.22 9 41.6 50.8 8.8999 9.9241

10 150 216 275 10 47.8 51.0 541 572 02 9.0156 0.5952 8.8240 9.2

-3541 -2 31.83 8.9397 8.7505 +.916 +.564

10 21.7 32.69 10 54.06 + 41.61 + 1.08 - .34 - .03 -.756 +1.020 +1.744 9.7349 + 42.32 11 36.38 - 1.74 11 34.64 9.8841 9.9241 9.6190m + 7.85 9.80867 6 54.8 1.51441 -.2791 29.2 40 1.43686m -.1368 1.2261 9.7349m 9.1361m 9.8082 6 4200 - 27.34 49 58 5724 6 14.66 16 33.69 - 12.17 58 45.07 +.392 -.459 +1.19 +11.65 +12.17 - 4.50 16 44.30 - .29 - .29 + 825 + .18 10 59.23 -17 3645 56 13.2 4958 4939

Jan. 10 33 12 9.4560 +.4129 -.08 10 41.5 8.9 9.9815

2 12 10 +55 14 10 41.5 8.9 11 38.7 48.3 49.5 12 4.2 7.8 11.5 15.7 18.9 8.8

-3712 -2 3120 .574 1395 12 11.548 + 37.40 + 1.38 - .14 - .02 + 38.62 12 50.00 10 - 2.01 12 48.09 9.75605 1.43104 + 13.55 48 32 41.4 1046 47 52.30 - 19.99 55 17 4392 - 1831 17 3561 9.7349m 9.1361m 9.8082 44 32.31 35 16.04 - 17 4567 - .10 - .52 + 13.95 + .31 -17 32.12 55 17 30.37 12 10.97 14 59.4

1.30087m

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1883phae.proj.1611.

764

Jan. 17

762

Jan. 10

Jan. 17

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1883phae.proj.1611.

765

766

764

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1003phae.proj:1611:

765

766

764

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1884

ch. f 765
Jan. 21

2 39 38
+51 1
38 15.5
50 55.8

9.5

2 132 9.79872
463
1195
1 5975

- .03

- 776
1 3864
21 9.71

766
Jan. 22 40 6 9.8090

.2188
+4138 +1.066
-.14 +4138
2 38 210 8.9166
56.0 9.8836
39 230 520 39 30.8 9.0257
281 56.3 33.5
31.2 0.5 37.0
40.0 0.6168
9.3 43.3 8.8002
8.9093
-3722 8.8347
-2 1824
+1.006
1688 1846 +.539
39 2706 6.3 39 36.92 -.821
-19.35 27 + 45.1x 5 +1.176
+9.49 + 1.03 +1.900
+45.94 - .22
- .02 9.8090
40 22.86 9.8909
-1.90 9.8836
40 20.96 9.6999n
+9.129 9.79872 -.5011
1 59.8 1.28668n .2726
33.0 1.19218 -.2285
0.88477n
92.8 1.1856
1 464.0 9.8090n
+15.62 51 3518 9.3559n
1 30.58 3 48.7 9.7745
21 17.77 -1078 51
-17 43.72 3 3239 +3.73
-.03 40 2440 -550
- .31 +231
+ 9.33 +10.24
+ .20 (39 43.74 +10.78
-17 34.60 53) 1 6.2
51 3 34.05

Jan. 22 40 11 9.8097

2188
+4190 +1.068
-14
2 38 155 8.9166
55.8 9.8831
39 230 39 51.6 9.0257
288.1 55.3
31.2 9.1 58.3
52.0 1.3 0.6170
9.1 56.3 4.8 8.7997
0.5 39 5826 8.9088
3722 - 2626 8.8354
-2 1824
39 3200 +1.007
56278.23 29.18 +.538
39 20.8 39 58.26 -.820
2427 37.48 + 45.1x 5 +1.178
30.83 + 1.03 +1.903
+45.93 - .22
- .03 1793 9.8097
40 44.19 9.8909
- 1.90 9.8831
12 40 42.29 1603 9.7006n
+9.01 9.79872 -.5019
1 43.2 1.38588 .2726
17.0 1.40147n -.2293
60.2 1.29757 1.1851
1 301.0 9.8097n
+1984 25.20 51 3 2381 9.3604n
1 4998 4.90 4 8.74 9.7740
2x0 43.45 5841 - 1077
17 43.72 3 57.97 +3.73
- 15 .36 1304 -551
- .26 +2.32
+ 9.33 +10.23
+ .20 3938.81 +10.77
-17 34.71 640 54.8
51 3 59.73

ch. f
Jan. 21

2 40 56
+54 38
39 30.4
53.0

75

4 55.8 9.75895
28.8
84.6
4 423.0

Jan. 21 44 54 9.8487 9.5820

.2838
2 58 55 +4929 +1.357
+55 9 -07 8.9816
57 26.7 9.8502
3.8 9.9658
58 9.8 58+7.26 45.3 9.0673
15.2 5250
18.6 .60 52.6
0.6463
7.6 8.8318
-39.83 8.9175
-2 807 8.9160
+1.061
43.6 +.578
58 14.5 3 58 5255 -.814
+ 38.02 + 4429 +1.434
+ 1.21 +2.259
+45.35 - .12
- .03 9.8487
59 37.90 9.9143
- 2.26 9.8502
59 35.64 9.7630n
+13.53 9.75646 60 -.5794
54 45.0 1.58001 .2477
17.1 1.45075n -.3317
62.1 39 1.1522
54. 310.5 9.8487n
- 28.23 55 59 9.5208n
54 2.82 4 11 15.61 9.7645
55 28 45.53 - 10.77 51
-17 43.45 11 4.84 2 +3.40
- .37 -6.01
- .76 +3.26
+ 14.36 +10.12
+ .30 58 55.81 +10.77
-17 29.92 8 56.8
55 11 2.08

Jan. 21 45 39 9.8544

.2443
3 1 55 +4327 +1.255
+52 40 -07
0 29.4 8.9421
52 35.8 9.8445
1 11.8 1+680 45.0 9.0414
16.8 51.80
21.1 .70
0.6362
7.0 -680 58 8.7866
-38.92 8.8859
-2 636 8.8958
+1.037
49.7 +.521
1 16.6 57 1 51.75 -.757
+ 35.18 + 44.29 +1.369
+ 1.10 +2.170
+45.25 - .12
- .02 9.8544
2. 37.00 9.9006
- 2.17 9.8445
2 34.83 9.7550n
+10.81 9.78280 -.5689
23 45.0 1.54630 .2629
17.7 1.44288n -.3060
62.7 1.1465
23 313.5 9.8544
- 27.73 52 9.4857n
23 3.62 42 12.09 9.7451
59 44.73 - 9.96 50
-17 43.45 42 2.13 +3.36
- .32 -6.09
- .60 +3.01
+ 11.49 +9.68
+ .24 1 55.91 +9.96
-17 32.64 39 55.8
51 42 1.28

Jan. 21 46 53 9.5997

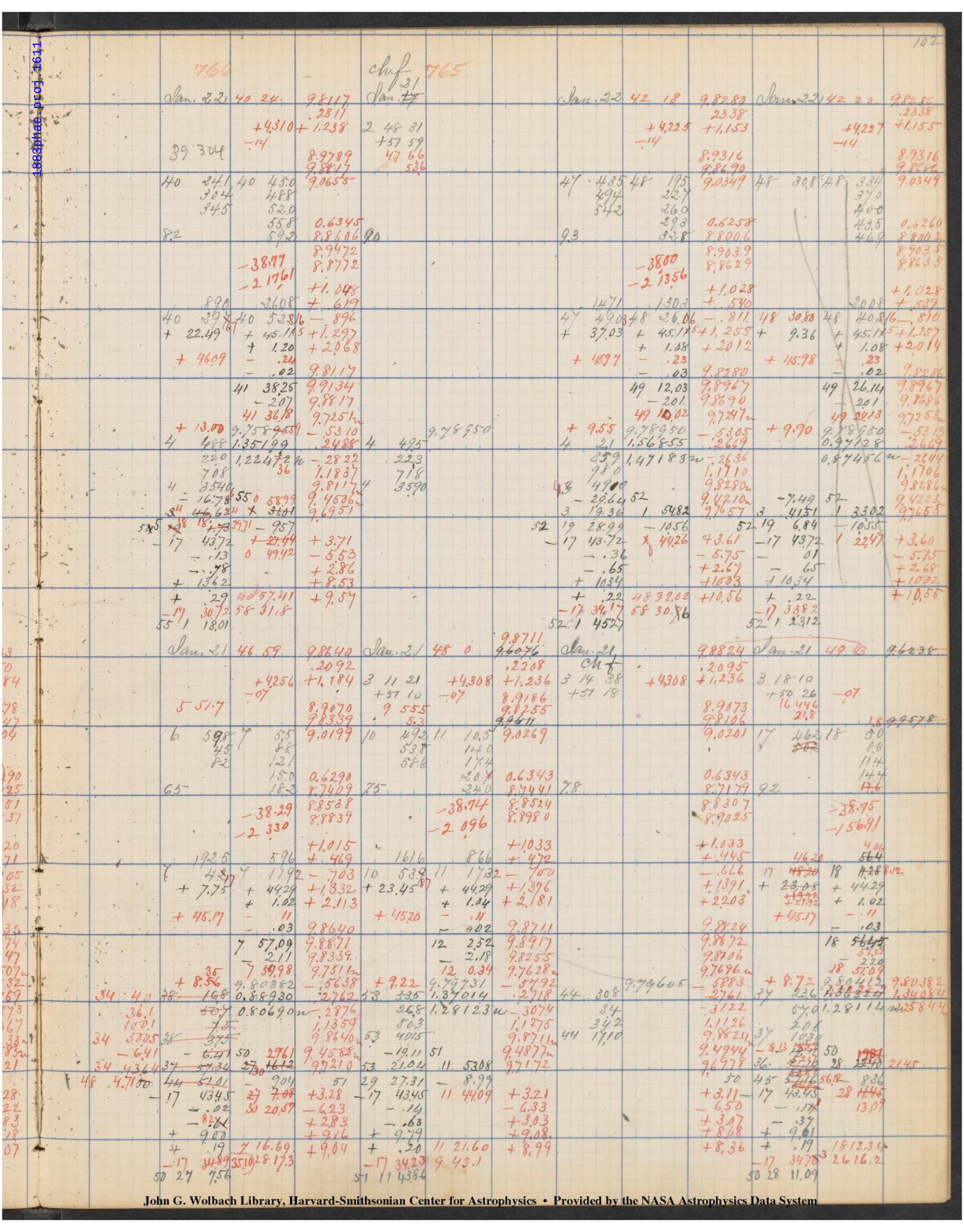
3 6 54
+50 30 -07
5 29.2
24.9 9.9626
6 5.5 6 15.7 ±0
8.5 19.0
12.5 22.2
25.5
29.0
-3829
-2 3.57 1114
6 2228
+ 2594
26.5
6 8.83 6 4822
+ 39.39 + 4429
+ 1.02
+45.17 - .11
- .03
7 33.39
- 2.12
7 31.27
+8.09 9.80351
34 23.2 1.59539
58.4 1.51268n
21.6
34 108.0
-32.56 50
33 38.24 31 34.75
50 49 10.11 - 9.07
-17 43.45 31 25.68
- .42
- .71
+ 9.03
+ .19 6 52.98
-17 35.36 29 22.1
50 31 26.66

Jan. 21 46 53 9.8633

.2150
3 7 16 +4256 +1.184
+50 28 -07
5 51.7 8.9078
23.5 9.8347
7 25.6 6 41.6 9.0204
31.0 45.0
34.3 48.4
51.5 0.6290
65 54.6 8.7425
8.8551
Reject. 8.8837
6 +1.020
90.9 241.1 +.471
1 30.3 6 4822 -.705
-. 42.08 + 4429 +1.332
+19.92 + 1.02 +2.118
+45.18 .11
- .02 9.8633
7 33.40 9.8874
- 2.12 9.8847
7 31.28 9.7507n
+7.90 9.80382 -.5632
8 5 4 40 1.62408n .2759
36.1 1.54168 -.2873
3 10.01 1.1367
3 6005 9.8633n
-34.81 50 29 47.94 9.4583n
3 5 24.86 30 57.56 9.7221
50 4 7 33.11 23.49 - 9.07
-17 43.45 29 38.87 +3.28
- .47 -6.22
- .82 +2.83
+ 9.90 +9.18
+ .19 +9.07
-17 35.55
50 29 40.04

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1803phae_proj_1611



John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1883phae.proj.1611.

765

Jan. 21 51 1 9.8906

Jan. 21 51 10 9.8915

Jan. 21 52 18 9.8983

Jan. 21 56 32 9.9213

Jan. 21 57 42 9.9270

Jan. 21 Chf

Jan. 21 Chf

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1003phae.proj.1611

765

Jan 21 54 7 9.9086

.2038

3 35 46 +.4367 +1.295

+50 4 −.08

34 18.5

0.2

8.9016

9.7680

35 20.5 35 364 9.0167

25.1 39.3

26.7 42.4

48 5.5 0.6402

98 49.0 8.6696

8.7847

−39.28 8.9253

−14.602

+1.047

72.3 21.21 +.398

35 24.1 35 42.42 −.600

+ 18.32 + 44.29 +1.466

+ 1.00 +2.311

+ 45.14 − .12

− .03 9.9086

36 27.56 9.8849

−2.31 9.7680

36 25.25 9.7935

+ 7.86 9.80746 − .6216

19 48.6 1.26293 .2783

22.2 1.18417 −.3433

7.08 1.0700

59 35.40 9.9086

− 15.28 9.5357

59 20.12 5 52.64 9.6529

50 23 28.23 − 7.13

− 17 43.45 5 45.51 +2.82

− .09 −6.90

→ .78 +3.38

+ 8.56 +.783

+ .17 35 45.97 +7.13

−17 35.59 3 59.5

50 5 49.78

ch. f

Jan 21 9.78934

3 36 35

+52 0

3 29

8.60

9.89

2. 49.45

Ex

Jan 21 58.19 9.9299

.2375

3 32 82 +4.542 +1.470

+52 14 −.08

51 2.0 8.9353

10.8 9.7203

52 24.2 9.0372

27.6

−40.86 31.3

34.6 0.6572

38.5 8.6556 8.6

8.7575

8.9671

15.62 +1.088

4 +.385

52 31.24 −.563

+ 44.28 +1.614

+ 1.08 +2.524

+ 45.21 − .13

− .02

53 16.45

− 2.52

53 13.93

9.78707

Jan 21 58.31 9.9308

.2401

3 52 19 +4.554 +1.482

+52 24 −.08

51 48.3 8.9379

20.8 9.7179

53 12.1 9.0388

15.4

16.5

22.0 0.6584

26.1 8.6558

8.7567

−40.97 8.9696

−1.345

+1.091

18.58 9.41 +.386

53 1.93 53 18.82 −.562

+ 16.89 + 44.28 +1.623

+ 1.09 +2.538

+ 45.21 − .13

− .03 9.9308

54 4.03 9.8991

− 2.54 9.7179

54 1.49 9.8299

+10.65 9.78543

39 37.8 1.22763 −.6760

10.1 1.12684 −.4115

47.9 1.0199

39 23.95 9.9308

− 13.39 52 9.6144

39 10.56 26 49.9 9.6170

52 43 37.79 − 6.51

−17 43.45 25 58.48 +2.51

− .08 − .726

− .75 + 4.05

+ 1.24 + .721

+ .24 53 20.52 +6.51

−17 3.280 24 24.0

52 25 54.34

Ex

Jan 21 58.34 9.9311

.2401

+4.555 +1.483

−.08

8.9379

9.7179

53 25.3 9.0388

29.2

32.7

35.6 0.6585

38.5 8.6552 8.6

8.7561

8.9699

+1.092

16.13 +.385

58 22.8 −.561

+ 44.28 +1.624

+ 1.09 +2.540

− .13

− .02

54 17.48

− 2.54

54 14.94

9.78543

ch. f

Jan 21 9.68924

3 40 1

+50 0

3 54 21

+51 33

3 50.8

25.9

76.7

3 38.25

9.80519

9.80807

43 11.4

46.4

117.8

42 58.90

9.79367

21 0.4

33.2

93.6

30 46.80

1883phae.proj.1611.

ch. f

1884 Jan. 21.

3 55 53
+52 57

9.0

9.77997

6 53.0
264
794
6 89.70

ch. f

Jan. 21

3 56 29 +4.590
+52 48

9.2

9.78147

15 4.78
2.01
6.79
15 3.395

ch. f

Jan. 21

4 5 52
+50 32

9.80320

31 4.20
17.2
5.92
31 2.960

9.9363
.2451
+1.518
8.9429
9.7027
9.0479

0.6618
8.6456
8.7446
8.9782

+1.100
+ .377
− .476
+1.655
+2.656
9.9363
9.9009
9.7027
9.8372
− .6874
.2626
− .4248
1.0047
9.9363
9.6282
9.6036

+2.42
− .735
+4.18
+6.99
+ 6.24

Jan. 21 62 14

4 8 10 +4.516
+50 39 −.08
6 40.1
50 3.55

7 3.64 8 .26
4.19 .59
4.70 .89
12.0

9.1 1.55

− .4063
−1.2442

12.53 .449
41.8 8 .90
7 .898
+ 27.21 + 44.28
+ 1.02
+ 45.15 − .13
− .02

8 54.13
− 2.54
8 51.59
+ 9.17
25 4.90
2.19
7.09
25 35.45
− 22.42 50
.25 13.03 40 1.04
50 57 35.32 − 5.00
− 17 43.45 39 56.04
+ .19
− .10
+ .926
+ .20 8 10.96
− 17 34.28 38 3.16
50 39 51.87

9.9469
.2126
+1.444
8.9104
9.6683
9.0219

0.6547
8.5787
8.6902
8.9688

+1.082
+ .323
− .482
+1.620
+2.543
9.9469
9.8884
9.6683
9.8353
− .6844
.2750
− .4094
0.9703
9.9469
9.6122
9.5567

55
+ .224
− .754
+4.03
+ 6.27
+ 5.00

Jan. 21 59 43

8 58 10
+52 43 −.08
56 390
395

57 8.80 58 3.6
4.23 6.9
4.73 2

1.34
16.8

8.7

− 41.29
−1 31.26

1276 1018
57 42.53 58 6.83
+ 2430 + 44.28
+ 27.65 + 1.10
+ 45.22 − .13
− .03
58 55.40
− 2.66
58 52.74
+ 11.54 9.78230
21 5.14 1.38579
37.1 1.28169 m
1022 1.33778
20 5.10
− 3.43 52
3.33 44 47.12
2 − 6.24
17 43.45 44 40.87
− .20
− .14
+ 1.164
+ .24 58 11.45
−17 31.96 43 9.6
52 44 35.57

Jan. 21 62 57

4 11 6 +4.788
+53 12 −.08
9 3.06 26.2
52

10 1.44 10 27.555
18.8 5.95
26.4 2.9
26 6.2
23 9.5

7.0

− 43.07
−1 22.35
586 3.436 2
10 19.53 11 2.72
+ 43.19 + 44.28
+ 1.21
+ 45.32 − .14
− .03
11 48.04
− 2.81
11 45.23
+ 14.16 9.75642
15 1.63538
51 4.094
34.6 1.50558 m
9 6.1
50 48.05
− 2.296
55 2.67
50 16.09 15 3.64
55
32 32.36 − 5.86
− 17 43.45 14 57.18
− .48
− .14
+ 14.48
+ .30 11 2.06
−17 29.29 13 34.8
55 14 48.81

9.9497
2849
+1.716

8.9827
9.6578

9.0680

0.6802
8.6405

8.7258
9.0177

+1.148
+ .372
− .523
+1.813
+2.810
9.9497
9.9147
9.6578
9.8644
− .7318
.2473
− .4845
0.9598
9.9497
9.6853
9.5725
55
+ .218
− .759
+4.77
+ 6.50
+ 5.86

Ex.

Jan. 21 59 51

8 58 37 +4.446
+49 54 −.08
57 86
504

7.2

− 4.000
−1 30.90

58 48.90
− 14.10
+ 45.14

9 3840
+ 11.80 49
9 50.20 55 22.47
12 58.15 − 5.49
17 43.45 55 16.98
− .05
− .78
+ 8.43
+ .17 58 37.48
−17 35.68 53 46.1
49 55 22.08

Jan. 21 62 58

10 30.1
32.6
35.4

9 30.6

10 .03
.34
6.5
9.8
1.35

− 43.06
−1 22.35

98.1 335
10 32.70 11 6.70
+ 34.00 + 44.28
+ 1.21
+ 45.33 − .14
− .02

11 52.03
− 2.81
11 49.22
+ 14.09 9.75642
52 3.08 1.58148

24 1.40168 m
3.32
52 1.660
− 45.22 55
58 51.38 13 7.61
30 36.97 − 5.86
− 17 43.45 13 41.75
− .30
− .39
+ 14.48
+ .30 11 6.16
−17 29.36 11 59.4
55 13 3.52

9.9309

9.9369
.2010
+1.374
8.8988
9.7009
9.0150

0.6480
8.5997
8.7159
8.9519

+1.066
+ .339
− .512
+1.558
+2.451
9.9369
9.8837
9.7009
9.8206
− .6616
.2793
− .3823
1.0029
9.9369
9.5824
9.5846

+2.41
− .737
+3.76
+ 6.49
+ 5.49

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1003phae.proj:1611:

ch. f 765

Jan. 21

3 59 47
+50 36

7.2

9.80259

27 36
3X2
1008
26 5040

Jan. 21 63 12 9.9506

2646

4. 12 0 +4.713 +1.641
+53 58 -.08
10 266 8.9624
558 9.6541

12 39.5 12 21.7 9.0545
43.3 25.7
47.6 28.4
32.2 0.6733
8.8 35.7 8.6165
8.7086

-42.40 14.42 9.0051
-12.72 12 28.84
- 2.85 +1.130
13.04 +.352

12 43.5 12 0.79 -.503
-42.68 41 + 4.428 +1.761
+ 1.16 +2.740
+ 45.27 - .14
- .03 9.9506

12 46.06 9.9079
- 2.74 9.6541
12 43.32 9.8585
+ 12.70 9.76957 -.7219
6 3.1 1.630222 -.2551

3.78 1.513557 -.4668
10.29 09561
5 51.45 9.9506
+ 32.63 53 9.6691
6 24.08 58 53.52 9.5620

584 16 24.27 - 5.51 53
-17 43.45 58 48.01 +2.17
- .47 - 7.60
- .14 + 4.59
+ 13.04 + 6.35
+ .27 12 0.92 + 5.51
-17 30.75 5726.3
53 58 40.82

Jan. 21 64 29 9.9396

.2203

4 1 11 +4.514 +1.445
+57 9 -.08
59 41.2 8.9181
5.3 9.6926

0 46.3 1 3.3 9.0266
47.7 6.7
51.2 10.3
56.8 13.3 0.6548
9.5 16.7 8.6107
8.7192
-.4064 8.9662
-1.2949
+1.082
20.20 50.3 +.348

0 50.50 1 10.06 -.515
+ 19.56 + 4.428 +1.610
+ 1.04 +2.525
+ 45.16 - .13
- .03 9.9396

1 55.22 9.8915
-.253 9.6926
1 52.69 9.8311
+ 9.87 9.79746 -.6778
55 32.0 1.29134 -.2720

41 1.20261 -.4058
36.1 .9946
55 18.05 9.9396
-15.94 51 9.6083
55 2.11 10 12.66 9.5841

51 27 46.24 - 5.63
-17 43.45 10 7.03 +2.37
- .11 -7.41
- .05 +3.99
+ 9.83 +6.68
+ .20 1 12.05 +5.63
-17 33.58 8 37.8
51 10 2.79

Jan. 21 64 18 9.9548

.2543

4 16 28 +4.690 +1.628
+53 17 -.08
14 59.2 8.9521
16.4 9.6372

16 11.1 16 21.6 9.0478
16.7 24.7
21.2 28.1
31.4 0.6712
8.6 34.8 8.5893
8.6850

-42.20 9.0026
-1 18.57
+1.124
4.90 14.06 +.331

16 16.33 16 28.12 -.476
+ 11.79 + 4.428 +1.751
+ 1.13 +2.730
+ 45.26 - .13
- .02 9.9548

17 13.38 9.9042
- 2.73 9.6372
17 10.65 9.8590
+ 12.51 9.77626 -.7228
40 3.20 1.07751 .2591

4.7 0.96155 -.4637
36.7 09392
45 18.35 9.9548
- 9.16 53 9.6662
20 8.22 9.5414

37 39.16 - 5.01 50
17 43.45 20 3.21 +2.08
- .04 -.768
- .05 +4.56
+ 12.35 +6.05
+ .25 16 28.45 + 5.01
-17 30.94 18 44.6
53 19 55.71

Jan. 21 64 40 9.9561

.2092

4 17 57 +4.535 +1.463
+50 26 -.08
16 26.5 8.9070
23.0 9.6313

17 22.5 17 49.3 9.0199
28.4 52.7
33.4 56.0
59.3 0.6566
2.6 8.5383
8.6512

-40.81 8.9760
-1 17.49 +1.087
8.43 2.799 +.294

17 28.10 17 [illegible] -.941
+ 27.88 55.98 +1.647
+ 4.428 +2.587
+ 45.14 - .13
- .03 9.9561

18 41.12 9.8871
- 2.59 9.6313
18 38.53 9.8432
+ 8.45 9.80412 -.6970
38 34.6 1.44529 .2762

10.0 1.36319 -.4208
44.6 09333
38 22.30 9.9561
- 23.08 50 9.6241
37 59.22 27 14.13 9.5184

44 49.13 - 4.24
17 43.45 27 9.89 +2.06
- .21 - 7.70
- .58 + 4.14
+ 9.05 + 5.74
+ .19 17 57.72 + 4.24
-17 35.01 25 52.4
50 27 5.68

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1883phae.proj.1611.

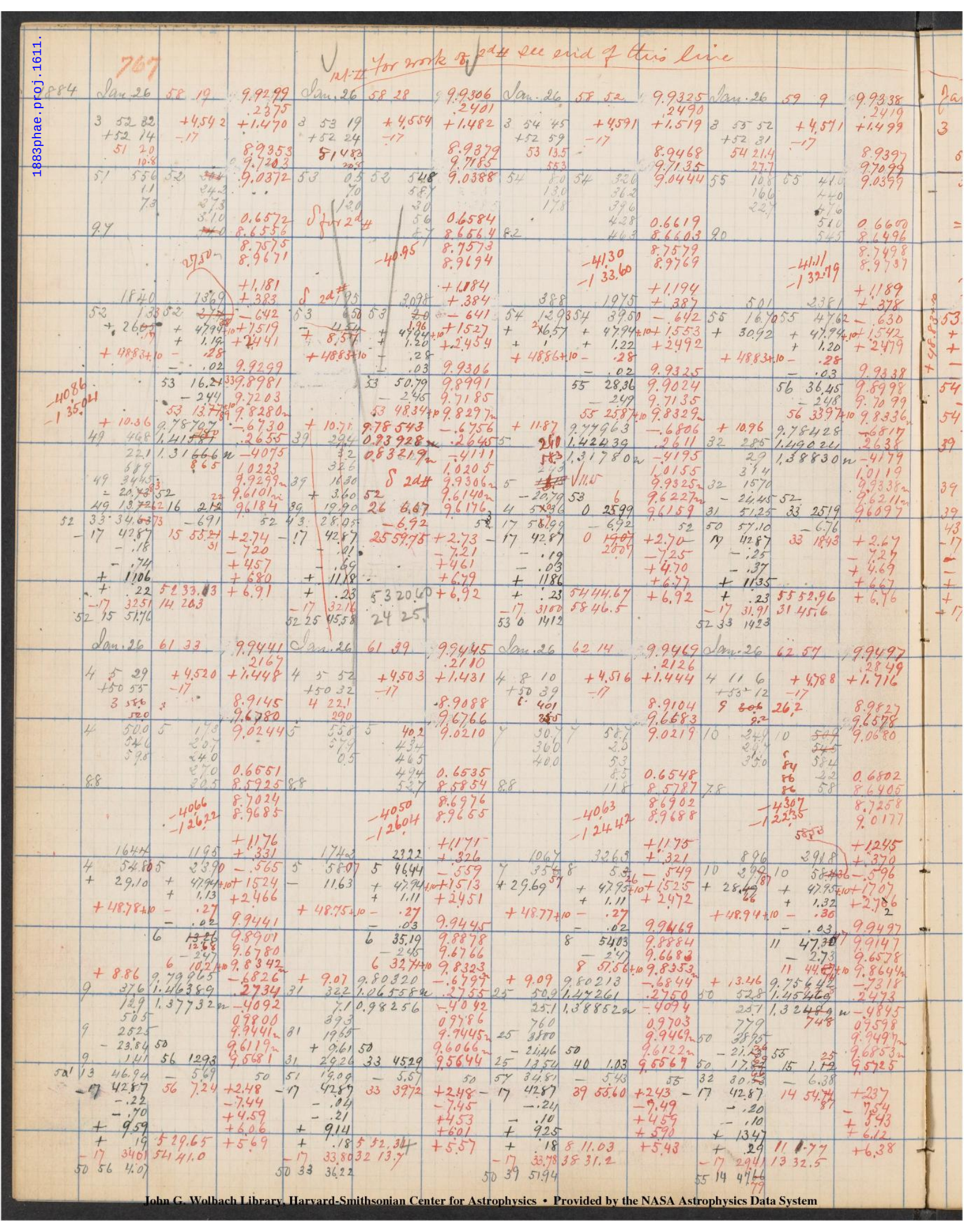
John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1003phae.proj.1611.

767

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1883phae.proj.1611.



John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1883phae.proj.1611.

2d #

Jan 26 | Jan. 26 | 57 46 | 9.9365 | Jan. 26 | 60 2 | 9.9377 | Jan. 26 | 60 29 | 9.9396 | Jan. 26 | 61 11 | 9.9426

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1883phae.proj.1611

A 9.4352
B 0.9175
C 1.1136
D 1.1687

1884	Jan. 26	64 40		9.9561	Jan. 26	64 53		9.9569	Jan. 26	65 45		9.9599	Feb. 2						
				.2092				.2593				.2206							
	4 17 57	+4.535		+1.463	4 18 47	+4.717		+1.645	4 22 17	+4.587		+1.515							
	+50 26	-18			+53 38	-18			+51 10	-18									
	16 26.5			8.9070	17 13.1			8.9571	20 45.2			8.9184							
	2.30			9.6313	3.52			9.6278	7.1			9.6135							
	17 18.7	17 45.6		9.0199	18 2.6.6	18 37.0		9.0511	21 5.7.3	22 5.5		9.0267	21 47.2	22 0.2					
	2.30	49.0			28.0	40.5			20	8.6			52.0	3.3					
		52.0			2.94	44.6			6.1	11.6			56.2	6.8					
		55.3	4	0.6566		47.3		0.6737	9.3	14.6		0.6615		10.0					
	8.4	56.5		8.9763	82	51.0		8.5849	9.0	15.5		8.5319	9.1	13.0					
				8.6512				8.6789				8.6402							
	20.85	-40.81		8.9760		-42.43		9.0080		-41.26		8.9866		-41.26					
		-1 17.49				-1 16.86				-1 14.43				-1 14.43					
				+1.180				+1.227				+1.193							
	6.8.9	26.05	86	+.299	8.40	21.98		+.325	23.92	5.8.5		+.288	15.5.4	3.3.3					
	17 22.97	17 52.10		-.502	18 28.00	18 [illegible]		-.535	22 6.07	22 11.70		-.490	21 51.80	22 6.76					
	+ 20.13	+ 47.95	+10	+1.550	+ 15.96	+ 43.96		+1.669	+ 5.63	+ 47.95	+10	+1.589	+ 14.86	+ 52.80					
	31.25	+ 1.11		+.2427		+ 4.95		+.2686		+ 1.14		+.2580		+ 1.03					
	+48.76	- .28	+10	2.514	+48.85	- .31	+10		+48.78	- .29	+10		+53.64	- .16					
		- .02		9.9561		- .03		9.9569		- .02		9.9599		- .03					
		18 40.86		9.8871		19 32.81		9.9060		23 0.48		9.8916		23 0.30					
		- 2.43	51	9.6313		- .269		9.6278		- .258		9.6135		- 2.39					
		18 38.43	+10	9.8432		19 30.12	+10	9.8629		22 57.90	+10	9.8515		22 57.91					
	+ 8.44	9.80412		-.6970	+12.61	9.77302		-.7293	+9.35	9.79731		-.7104	+8.89	9.79731					
	38 36.8	1.46435		.2762	26 44.0	1.20303		.2571	54 25.2	0.75051		.2719	54 27.1	1.17202					
	11.7	1.39227		-.4208	14.9	1,08983		-.4722	0.0	0.66160		-.4385	11.8	1.08311					
	4.85	1.41275		0.9333	5.59			0.9298	2.52			0.9155	8.89						
	38 24.25			9.9561	26 27.65			9.9569	54 12.60			9.9599	54 19.45						
	37 [illegible]	50	15.54	9.6241	- 12.30	53		- 4.59	51			9.6420	-12.11	51					
	50 [illegible]	27	13.78	9.5184	26 15.65	39 2.44		9.5338	54 8.01	11 6.82		9.5051	54 7.34	11 9.22					
50	44 45.21	49.17	4.70	53	56 32.70	5.44	51		28 40.34	4.58	51		28 41.01	5.12					
	- 17 42.87	27 9.08	+.223		- 17 42.87	38 5.00		+.221	- 17 42.87	11 2.24		+.214	- 17 40.68	11 4.10				+.224	
	- .23	10.84	- 7.65		- .07			- 7.66	- .01			- 7.72	- .06					- 7.54	
	- .54		+ 4.72		- .24			+ 5.29	- .67			+ 4.92	- .69					+ 5.70	
	+ 9.03		+.540		+ 12.67			+.560	+ 9.83			+.524	+ 9.45					+.472	
	+ .18	17 57.64	+ 4.70		+ .25	18 47.79		+ 5.44	+ .20	22 16.74		+ 4.58	+ .19	22 16.65				+ 5.12	
	- 17 34.43	5 53.4			- 17 30.26	37 40.1			- 17 33.52	9 47.8			- 17 31.79	9 49.7					
	50 27 5.34				53 38 49.83				51 10 51.47				51 11 0.33						
	Jan. 26	68 12		9.9678	Feb. 2				Jan. 26	68 33		9.9688	Feb. 2						
				.2023								.2572							
	4 32 3	+4.551		+1.479					4 33 26	+4.755		+1.683							
	+49 58	-18				-10			+53 30	-18				-10					
	30 31.9			8.9081					31 51.7			8.9550							
	55.2			9.5698					27.3			9.5631							
	31 19.2	31 54.9		9.0158	31 25.3	31 46.5			32 49.5	33 15.9		9.0497	32 39.5	33 10.7					
	24.3	54.9			30.3	49.0			54.3	19.5			45.6	14.2					
	30.8	56.1			35.3	53.2			59.1	23.7			50.8	17.4					
		1.3		0.6581		56.2				26.3		0.6772		21.0					
	9.0	4.6		8.4699	9.0	59.3			9.0	29.7		8.5181	8.9	34.6					
				8.5856								8.6128							
		-40.95		8.9836		-40.95				-42.78		9.0185		-42.78					
		-1 7.32				-1 7.32				-1 6.33				-1 6.33					
				+1.184				+1.240				+1.237							
	7.8.8	39.08		+.250	9.0.9	26.50		+.244	16.3.5	11.4.1		+.279	13.5.9	8.7.9				+1.295	
																		+.273	
	31 34.60	31 58.16		-.432	31 30.30	31 53.00		-.560	32 54.50	33 22.82		-.460	32 45.30	33 17.68				-.533	
	+ 33.56	+ 47.96	+10	+1.578	+ 22.70	+ 52.80		+1.420	+ 28.32	+ 47.96	+10	+1.710	+ 32.28	+ 52.80				+1.539	
		+ 1.09		+.2580		+ 0.99		+.2404		+ 1.24		+.2766		+ 1.12				+.2574	
	+48.75	- .28	+10		+53.60	- .16			+48.88	- .30	+10		+53.72	- .17					
		- .02		9.9678		- .03				- .02		9.9688		- .03					
		32 46.91		9.8843		32 46.60				34 11.70		9.9053		34 11.30					
		- 2.58		9.5698		- 2.40				- 2.77		9.5631		- 2.57					
		32 44.33	+10	9.8521		32 44.20				34 8.93	+10	9.8741		34 8.73					
	+ 8.18	9.80837		-.7114	+ 8.03	9.80837			+ 11.77	9.77439		-.7484	+ 11.20	9.77439					
	6 13.1	1.52582		.2789	5 59.8	1.35603			34 45.2	1.45209		.2579	34 44.7	1.50893					
		48.2	1.44797	-.4325		44.2	1.27818			19.4	1,34026	-.4905		28.3	1.39710				
		1.3		0.8718		10.40				6.49		0.8651		7.30					
		6.065		9.9678		5.2.00				34.32.45		9.9688		36.50					
		- 28.05	49	9.6360		- 18.97	49	42.67		- 21.89	53	9.6906		- 24.95	53				
48	5 32.60	59 41.06		9.4541	5 33.03	59 43.75		53	34 10.56	31 6.69		9.4684	34 11.55	31 7.32					
50	17 15.75	- 3.59	50		17 15.32	- 4.17		53	48 37.79	- 4.35		53	48 36.80	- 5.01					
49	- 17 42.87	59 87.47		+1.941	- 17 40.68	59 38.50		+.203	- 17 42.87	31 2.34		+1.91	- 17 40.68	31 2.31				+.200	
	- .31			- 7.86	- .14			- 7.68	- .21			- 7.88	- .27					- 7.70	
	- .16			+ 4.85	- .14			+ 5.62	- .72			+ 5.50	- .44					+ 6.37	
	+ 8.48			+ 4.66	+ 8.15 [illegible]			+ 4.20	+ 12.45			+ 4.82	+ 8.19					+ 4.34	
	+ .17	32 3.48		+ 3.59	+ .16	32 3.25		+ 4.17	+ .25	33 26.25		+ 4.35	+ .24	33 26.25				+ 5.01	
	- 17 34.49	58 30.2			- 17 31.57	58 31.2			- 17 31.10	29 56.0			- 17 29.48	29 56.0					
	49 59 32.88				32.68				53 30 54.92				53 30 56.12						
					49 59 34.64														

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1883phae.proj.1611.

767

Jan. 26 66 5 9.9610 .2419

768

Feb. 2

Jan. 26 66 19 9.9618 .2409 Feb. 2

Jan. 26 69 10 9.9706 .2801 Feb. 2

Jan. 26 68 50 9.9697 .2564 Feb. 2

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1883phae.proj.1611.

767

1884 Jan. 26 69 28 9.9715 .2013

4 37 8 +4.561 +1.489
+49 55 −18
35 364 8.8991
578 9.5445

36 40.5 36 660 9.0152
45.0 590
50.4 22
5.8 0.6591
8.0 90 8.4441

−41.04 8.5602
−1 3.63 8.9867
+1.186
1359 3120 +.235

36 453 037 240 −.407
+ 1740 + 4796 +10 +1.589
+ 1.09 +2.603
+48.75+10 − .28
− .02 9.9715

37 51.86 9.8838
−.260 9.5450
37 48.53+10 9.8553
+ 7.80 9.80882 −.7166
9 210 1.23300 .2792
53.8 1.15560 −.4374
168 0.8470
9 840 9.9715
− 14.31 49 9.6409
8 5409 56 199 9.4288
50 13 54.26 − 3.21 58
− 17 42.87 56 15.98 +1.83
− .08 − 7.93
− .66 + 4.91
+ 8.37 + 4.40
+ .17 37 7.61 + 3.21
−17 3507 55 12.4
49 56 11.39

Jan. 26 70 51 9.9753

4 42 39 +4.676 +1.604
+51 46 −18
41 60 8.9277
441 9.5154

41 57.3 42 294 9.0325
60 32.8
12.0 362
391 0.6699
9.2 430 8.4436

−42.08 8.5484
−0 59.49 9.0078
+1.216
1973 1805 +.235

42 58 42 8610 −.396
30.33 5.11 + 47.96 +10 +1.668
+ 1.17 +2.723
+48.82+10 − .29
− .02 9.9753

43 24.92 9.8952
−2.72 9.5159
43 22.20+10 9.8705
+ 9.95 9.79160 −.7422
18 333 1.48187 .2684

8.9 1.38725 −.4738
42.2 0.8179
18 21.10 9.9753
− 24.39 51 9.6756
17 56.71 47 18.72 9.4111
14 51.64 − 324 52
17 42.87 47 15.48 +1.71
− .24 − 8.00
− .53 +5.31
+ 1050 +4.22
+ .22 42 40.22 +3.24
−17 3292 46 16.0
51 47 8.77

765

Feb. 2

−.10

−41.04
−1 3.63
850 2869 +1.243
+.230

36 28.33 36 57 −.472
+ 29.05 + 5280 +1.430
+ 0.99 +2.431
+ 5360 − .16
− .03

37 40.98
−2.43
37 48.55
+ 7.34 9.80882
0 280 1.46315
132 1.38575
412
9 2060
− 24.31 49
8 56.29 56 187 2
13 52.06 − 382 58
− 17 40.68 56 14.90 +1.92
− .23 −7.74
− .69 +5.68
+ 8.10 +8.96
+ .16 37 7.51 +3.82
−17 33.34 55 11.3
49 56 11.38

Feb. 2

−.11

41 58.8 42 240 +666 30.61
42 278 +333 1.21
10.0

42 4.33 42 30.44 −.459
+ 26.17 + 5280 +1.501
26.61 + 1.05 +2.546
+ 5364 − .18
− .03

42 24.08 58
−2.55
43 21.53 2203
+ 9.61 9.79160
18 279 1.47687

12.0 1.32242 w
399 3042
18 1995
− 21.52 51
14 58955 47 18.33
4 49.40 80 − 3.93 51
17 40.68 47 14.40 +1.79
− .18 −7.81
− .53 +6.15
+ 1011 +3.80
+ .21 42 39.95 +3.93
−17 3107 46 15.3
51 47 8.72

Jan. 26 69 48 9.9722 Feb. 2

4 38 11 +4.731 +1.659
+52 53 −18
36 353 8.9455
583 9.5899

37 336 37 58.1 9.0436 37 30.7 37 529
399 13 36.7 560
455 47 404 596
8.1 0.6758 32
8.0 116 8.4854 7.5 66

42.57 8.5835
−1 2.82 9.0158
+1.231
1190 3238 +.259 1078 2983 +1.289
+.253

37 397 38 8 −.430 37 35.29 37 597 −.498
+ 25.09 + 47.96 +10 +1.699 4 23.73 +5280 +1.529
+ 1.22 +2.759 + 0.10 +2.573
+ 4886+10 − .30 +53.70 − .17
− .02 9.9722 − .03

38 53.62 9.9019 38 53.36
−2.76 9.5399 −.257
38 50.86+10 9.8741 38 50.79
1 + 11.69 9.78063 −.7483 + 11.23 9.78063
X1 100 1.39950 .2616 11 6.3 1.37530
432 1.29391 w −.4867 49.2 1.26971 w
1 1132 0.8419 11 X5.5
50 5660 9.9722 10 55.75
1 − 19.67 52 9.6873 − 18.61 52
50 36.63 54 40.24 9.4418 10 39.14 54 39.76
92 11.42 − 386 53 12 9.21 − 453
− 17 42.87 54 36.38 +1.81 − 17 4068 54 35.23 +1.89
− .16 −7.94 − .15 −7.76
− .14 +5.46 − .16 +6.32
+ 11.76 +4.53 + 11.32 +4.08
+ .23 38 8.39 +3.86 + .22 38 8.22 +4.53
−17 31.18 53 33.6 −17 2945 53 32.4
52 54 28.55 52 54 28.53

Jan. 26 70 58 9.9756 Jan. 26

4 43 3 +4.653 +1.581 4 44 57
57 19 −18 +51 13
41 306 8.9210 cl.f
168 52.7 9.5134

43 3.0 42 560 9.0283
1.6 590
14.0 23
5.8 0.6677
9.1 8.4344 9.4

−41.85 8.5417
−0 59.22 9.0039
2958 +1.210
3122 +.230

43 8.20 42 59.16 −.390
− 5.76 + 47.96 +10 +1.653
− 9.04 + 1.15 +2.703
+ 4880+10 − .29
− .02 9.9756

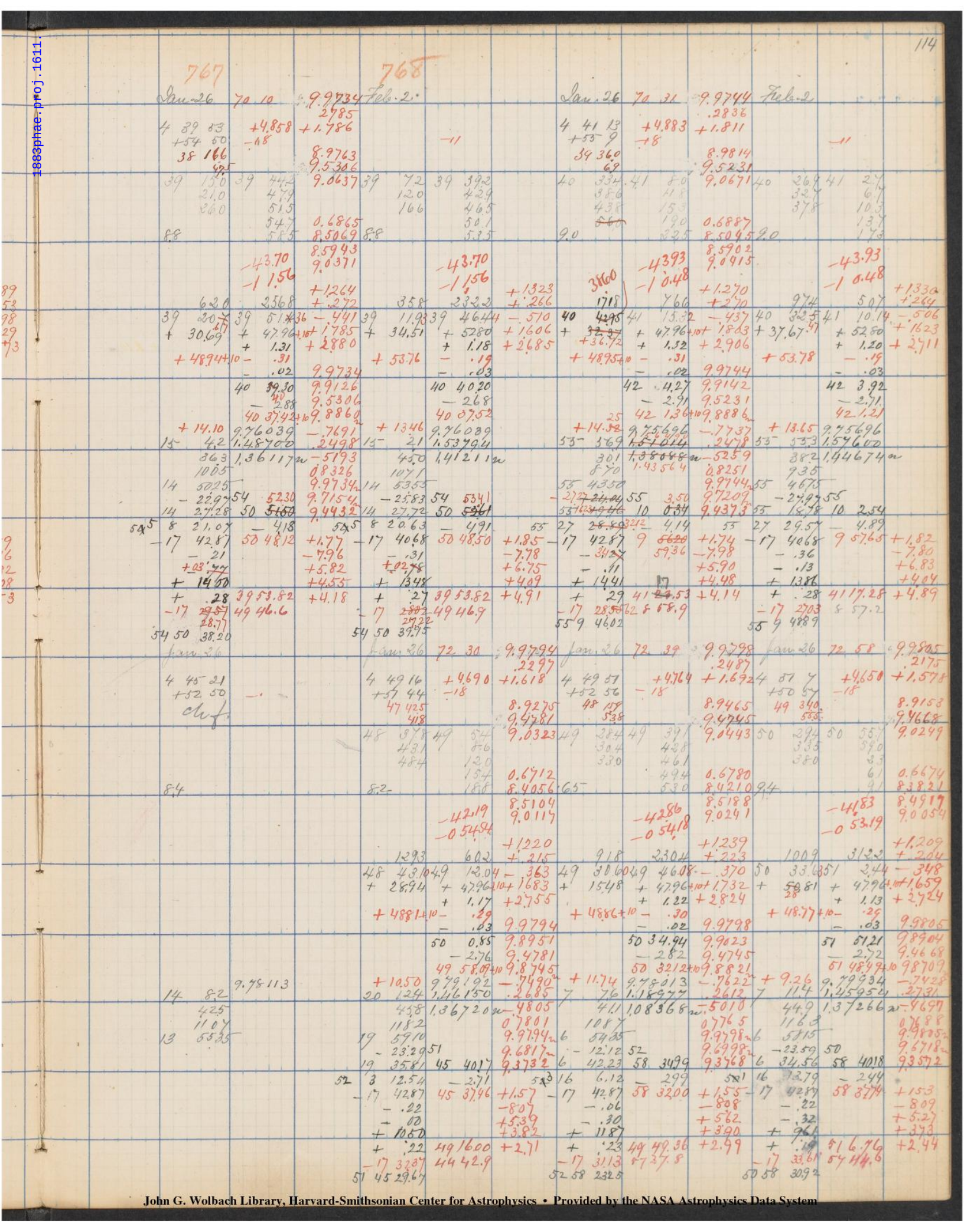
43 47.96 9.8926
−2.70 9.5134
43 45.26+10 9.8682
+ 9.43 9.79584 −.7382 9.79684
44 300 0.67242 w .2709 50 59.7
5.6 0.6.7000 −.4673 38.4
0.8.6584 0.8154 931
44 17.80 9.9756 50 46.55
+ 7.34 51 9.6696
44 25.14 20 49.77 9.4060
38 23.21 − 3.01
17 42.87 20 46.66 +1.70
− .02 − 8.00
− .69 +5.24
+ 9.94 +4.17
+ .20 43 3.51 +3.11
−17 33.43 19 47.4
51 20 40.93

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1883phae.proj.1611.

767

768



John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1883phae.proj.1611.

767

1884 Jan 26 | Jan 26 | Jan 26 | Jan 26

Jan 26, 1884 Re-computation of (ΔT+m) for Zone Obs.

It was found by comparison of Zone observations for Jan 26, with the mean of other values, that there was a change of rate during the evening. The following data for recomputation of (ΔT+m) was taken from N5. page 9.

Jan 26 1884 h' = -.060 Adopt- former value -.029 as rate for

h	ΔT+m		
1.9	- 47.97	-.06	- 48.03
3.3	47.93	+.02	47.91
3.6	47.93	+.04	47.89
2.9	47.943		47.943
4.9	- 48.02	-.01	- 48.03
[5.1]	[47.85]		
5.3	48.13	+.01	48.12
5.1	48.075		-48.075

1884 Jan 26 — h/2 — h/3

1. Use old values of (ΔT+m)

5.1 +.029 +48.014

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1883phae.proj.1611

777

ate for observations after 3.7h

3h	4h	5h	6h
+34)	up to 3.7h after trial- the following corr values		
48.014	+48.043	.072	.101

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1883phae.proj.1611.

47

737

continued from page 24

3
1884 Nov 28 m = +.60 9.4958m Nov 28

22 46 38 +2.527 .2406
+52 24 -.01 - .545
48 48.5 8.9384 45 48.5 -.01
9.9776

46 5.3 46 41.3 9.0391 46 15.0 46 43.0
44.8 46.7
48.0 49.6
51.0 53.3
9.1 54.6 8.9160 9.1 56.6
9.0167
-20.21 8.5349m -20.21
-2 32.32 -2 32.32
+2.684
+ .695

46 5.30 46 47.94 + .778 46 15.00 46 49.84
+42.64 + 1.261 - .642 +34.84 + 1.261
+ 0.78 +3.515 + 0.78
+13.35 - .02 +13.34 - .02
- .02 9.4958 - .03

47 1.29 9.8993 47 3.18
-3.52 9.9776 -3.52
46 57.77 9.3951 46 59.66 59.66
+9.85 9.78543 +.2484 +10.00 9.78543
37 36.1 1.62982 .2643 1.54208
21.2 +.5127 1.44129m
57.3 1.52903m 1.2798
37 28.65 9.4958 37 28.65
R: -33.81 52 9.7099 -27.62 52
36 54.84 27 42.52 9.8769 37 1.03 27 36.48
R-Cn. 62 45 53.51 - 40.83 52 45 47.32 - 40.83
R. -18 20.84 27 1.69 +20.23 -18 20.84 26 55.65
R. Ann. - .48 + 2.64 - .33
Ras - .50 + 3.84 - .50
+ 10.63 +14.12 + 10.63

+ .20 46 37.56 +40.83 + .20 46 39.45
-18 10.99 24 36.57 -18 10.84 24 23.3
52 27 32.67 29 52 27 26.48

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1993phae.proj.1611.

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1883phae.proj.1611.

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1883phae.proj.1611.

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1883phae.proj.1611.

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1993phae.proj.1611.

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1883phae.proj.1611.

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1883phae.proj:1611.

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System

1003phae.proj.1611.

John G. Wolbach Library, Harvard-Smithsonian Center for Astrophysics • Provided by the NASA Astrophysics Data System