XIII.— *The Rutherfurd Photographic Measures of Sixty-two Stars about η Cassiopeiæ,*

BY HERMAN S. DAVIS.

As was stated in the paper on the Parallax of η Cassiopeiæ*
the conditions of exposure and the methods of measurement of
the twenty-seven negatives of stars about η Cassiopeiæ made by
RUTHERFURD between 30 July, 1870, and 21 December, 1873, are
exactly the same as in the case of μ and θ Cassiopeiæ†, and, it
might also be added, the same as of the Pleiades plates.‡ In the
present paper I have, therefore, in the main, followed the methods
of reduction so fully set forth in the Pleiades publication.

In Table I. are given the general data of exposure of the plates,
while in Table II. are the *means* of the refractions computed for
the Eastern and Western impressions§ with the data of Table I.
by the formulæ‖

$$\frac{\sigma - s}{s} = x \left[\tan^2 \zeta \cos^2 (p - q) + 1\right]$$

$$\pi - p = -\tfrac{1}{2} x \operatorname{cosec} 1'' \tan^2 \zeta \sin 2 (p - q)$$

The argument for entering this table is p, which has been
printed in double columns to save the repetition of the numerical
values of the above equations in the succeeding columns since
they are the same whether the argument be p or $(p + 180°)$; in
all other respects the form of publication is similar to that used

*The Parallax of η Cassiopeiæ, deduced from Rutherfurd Photographic
Measures, by H. S. Davis. Annals N. Y. Acad. of Sci., Vol. VIII., Feb., 1895.

†The Parallaxes of μ and θ Cassiopeiæ, deduced from Rutherfurd Photo-
graphic Measures, by H. Jacoby. Annals N. Y. Acad. of Sci., Vol. VIII.,
March 1893.

‡The Rutherfurd Photographic Measures of the Group of the Pleiades, by H.
Jacoby. Annals N. Y. Acad. of Sci., Vol. VI., Feb. 1892.

§Ibid., p. 240.

‖Ibid., pp. 253-259.

in the previous *Rutherfurd Measures.* It is proper to add in this connection that these tables were computed by Professor Jacoby, who had to this extent begun the reduction of these star-positions previous to his departure to Europe. After the completion of the Parallax of η Cassiopeiæ these tables, together with the original measures, were placed in my hands by Professor J. K. Rees that I might finish the discussion thus begun.

The corrections for precession, nutation and aberration have been computed by the formulæ of page 267, Jacoby's *Pleiades*, which by the substitution of the coördinates of η Cassiopeiæ become in this case

$$\Delta p_{70} = +13+[0.822_n]A+[0.258_n]B+[0.183_n]C+[9.444_n]D.$$
$$\Delta p_{71} = + 7+[0.822_n]A+[0.258_n]B+[0.183_n]C+[9.444_n]D.$$
$$\Delta p_{72} = 0+[0.822_n]A+[0.258_n]B+[0.183_n]C+[9.444_n]D.$$
$$\Delta p_{73} = - 7+[0.822_n]A+[0.258_n]B+[0.183_n]C+[9.444_n]D.$$

where Δp_{70} denotes the correction to be applied to the position angle for the plates made in 1870, and so on in the other years as denoted by the subscripts. The factor for the correction of the distance is

$$\frac{\Delta s}{s} = [4.350]C + [4.413_n]D. \quad \text{for all years.}$$

The numerical values of these quantities are given in columns two and three respectively of Table III.; they are additive to the observed quantities, and will reduce them to 1872.0, for which time the coördinates of η Cassiopeiæ are

$$a = 0^h 41^m 22.^s108$$
$$\delta = 57° 8' 10.''50$$

based on Auwers' position and proper motion in the *Fundamental Catalog.*

In the second portion of Table III. is given the mean of the East and West zero-corrections computed for each by the formula*

$$v = \tfrac{1}{2} k z \tan \delta - y + x$$

in which v is the zero-correction to be added to all observed position angles of each plate.

*Annals N. Y. Acad. of Sci., Vol. VI., p. 272.

In the next column are the special corrections* required by the position angles of the Western impressions in consequence of using the same zero point in measuring both Eastern and Western impressions.† The sum of these two columns is then given in the last column, which, therefore, contains the final correction as actually applied in the reductions.

In Table IV. is given the tangent correction‡ which is always negative and whose unit is .0001 divisions of the micrometer, This table is a repetition of Table IV A. of *Stars about β Cygni,* but arranged in a form more suitable for use in connection with Table V, as will be evident later. It has been computed by the formula:

$$\text{Correction} = - \tfrac{1}{3}\, s^3\, d^2\, \sin^2 1'' = [1.7887_n]\, s^3$$

where s denotes the distance in divisions of the glass scale and d is the value of one division of the scale in seconds of arc.

Table V. The first column contains the numbers of the stars in order of right ascension and also in parentheses, for convenience of reference to the original measures and plates, are the numbers as assigned by RUTHERFURD. The number of the plate is given in column two after which follows the *observed* distances for the *Eastern* impression. The numbers set down are the fractional part of the measured distance expressed in divisions of the glass scale, the whole number of divisions being ordinarily the same as that given in the column *corrected mean.* In the case of one star only (No. 58) the corrections have been sufficient to change the whole number of divisions in passing from the observed distance to the corrected mean. In columns four, five and six I have placed the corrections as applied for refraction,§ aberration‖ and scale¶ respectively; these, with addition of the tangent correction only—which may be obtained directly from Table IV., being practically constant for each star—present all the corrections which have been applied to the observed *mean* distance of the East and West impressions to get the *corrected mean* of column seven. It is therefore possible from this data to reproduce the

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*Ibid., p. 278.
†Ibid., p. 240.
‡Ibid., p. 276.

§ Ibid., p. 253, *et seq.*
‖ Ibid., p. 267.
¶ Ibid., pp. 242–251.

observed distance *West* without the need of publishing it. Take, for example, Star 23, Plate 15.

Corrected mean, ... 60.4950
Refraction with sign changed, column 4,.................. —.0249
Aberration with sign changed, column 5, ... +.0039
Scale with sign changed, column 6, ... —.0098
Tangent Correction with sign changed, Table IV, ... ÷.0013

$\frac{1}{2}$ (East + West), ... 60.4655
East ÷ West, ... 120.9310
East, column 3, ... 60.4660

Diff. = West, observed distance,.............. 60.4650

In like manner column eight gives the East observed position angle and the last column the corrected mean from which we may similarly reproduce the West observed position angle. Using for illustration the same star and plate:

Corrected mean position angle .... 295° 43′ 38″
Refraction with sign changed, Table II............. ÷   6
Zero Correction with sign changed, Table III....... —18   17
Correction of 270° with sign changed*.............—270   0   0

$\frac{1}{2}$ (East — West).................... 25° 25′ 27″
East ÷ West..................... 50 50 54
East, column 8.................... 25 24 22

Diff. = West, observed position angle........ 25 26 32

In this way one may return to any of the observed distances or position angles of the Western impressions.

Table VI. contains the final mean of the position angles and the means of the distances as given in Table V., but reduced to seconds of arc by the scale value 28.″0124, which is the mean of the scale values deduced from all the Pleiades plates.† They are followed in columns six and seven by the differences of right ascension and declination derived by aid of the formulæ.‡

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* This correction is simply to make the position angles agree with the usual method of counting from the North Point towards the East. Ann. N. Y. Acad. Sci., Vol. VI., p. 272.

† Ann. N. Y. Acad. Sci., Vol. VI., p. 335.

‡ Ann. N. Y. Acad. Sci., Vol. VI., p. 317, from which I have departed in notation, somewhat, for the convenience of computing.

Logarithms for these plates
only.

$$n = \sigma \sin \pi$$

$$m = \sigma \cos \pi$$

$$P = \sec \delta = [0.265487]$$

$$Q = [4.685575\,] \tan \delta \sec \delta = [5.1408\;]$$

$$R = [8.89403_n\,] \tan^2 \delta \sec \delta = [9.5390_n\;]$$

$$S = [8.89403\;] \sec \delta \,(1 + 3 \tan^2 \delta) = [0.0727\;]$$

$$T = [4.384545_n] \tan \delta = [4.5743_n\;]$$

$$U = [8.59300_n\,] \,(1 + 3 \tan^2 \delta) = [9.5062_n\;]$$

$$V = [3.57960_n\,] \sec \delta \tan \delta \,(1 + 3 \tan^2 \delta) = [4.94800_n]$$

$$W = [3.57960\;] \sec \delta \tan \delta \,(2 + 3 \tan^2 \delta) = [4.99804\;]$$

$$a' - a = Pn + Qnm + Rn^3 + Snm^2 + Vn^3 m + Wnm^3$$

$$\delta' - \delta = \qquad\quad m + Tn^2 + Un^2 m$$

where σ and π are the final corrected mean distance and position angle respectively of the star whose a' and δ' are desired. It was found also that the terms in V and W were not needed since they are so nearly equal and have contrary signs.

But since these values of $a'-a$ and $\delta'-\delta$ do not take into account the proper motion of the reference star which in this case is considerable, but are only the mean of many measures taken on widely differing dates regarding η Cassiopeiæ as fixed in the position given on page 382, I have given in column 3, Table VI., the mean epoch at which these values of $a'-a$ and $\delta'-\delta$ truly represent the mean coördinates of the different stars referred to η Cassiopeiæ 1872.0 as the origin, that thus they may be corrected for the interval between this mean epoch and 1872.0 by any assumed or computed proper motion of η in the same manner as when dealing with other star catalogues.

In the last column is given the *Bonn Durchmusterung* number, and in column two the magnitudes from the same for so many of the stars as I have been able to identify.

Using the differences of right ascension and declination of Table VI., and the given position of η Cassiopeiæ, we get the *right ascensions* and *declinations* of Table VII., good for 1872.0, save with regard to proper motion as mentioned above.

In column two is given the number of plates on which the star is found, but it may be well to state that the given posi-

tion is the result of at least twenty measures of distance and twelve of position angle for *each* plate recorded in this column two. With regard to the probable errors of these resulting positions the same remarks apply to these plates as to those of β *Cygni*.*

The precessions and secular variations depend on the constants of STRUVE, and were computed with the aid of FOLIE's tables† with the necessary differential corrections applied to make them good for 1872.

With regard to SCHEINER's remarks‡ on the correction for the refraction formulæ suitable for visual observations to make them applicable to photographic work, I would say that I have not applied such corrections in the present paper, for the reason that the RUTHERFURD plates. being made more than twenty years ago and previous to the use of "dry plates," would probably not furnish the same coefficient of refraction for the violet rays as would the plates that have been used in SCHEINER's investigation. In fact, this surmise is in part confirmed by a difference of over two *per cent.* in the coefficient as determined from RAMBAUT's plates and by SCHEINER.‡ In the present paper, however, an inspection of Table V., column four, will show a more practical justification for ignoring a correction which would, with our present knowledge of the plates used by RUTHERFURD, be of uncertain value, namely, in the fact that even in the case of the star giving the largest mean refraction for all the plates, a correction of $\frac{1}{85}$ of that mean refraction would in the most extreme case make a change of less than .″004 in a, and less than .″01 in δ, owing principally to the fact that the plates were exposed at small zenith distances as seen in Table I.

*Ann. N. Y. Acad. Sci., Vol. VI., p. 334, *et. seq.*

†Douze Tables pour le Calcul des Réductions Stellaires, Mém. Soc. Roy. des Sci. de Liege, t. x. 1883 supplément.

‡Ast. Nachr. Bd. 136, N. 3255, p. 248.

TABLE I.—GENERAL DATA.—Observatory of L. M. Rutherfurd, New York.

Lat. = 40° 43' 48."5.   Long. = 4^h 55^m 56.·62 W.

No.	Date	Sidereal Time	Barom.	Att. Therm.	Ext. Therm.	Tel. Therm.	Focus.	Zero.	ζ	q	Log λ
1	1870 July 30	21^h 32^m 15^s	30.18	73°	70°	73°	7.9	57.61	34.20	− 97.95	6.4339
2	1870 July 30	22 7 30	30.184	73	70	73	7.9	53.28	29.55	−107.02	6.4342
3	1870 Aug. 4	23 53 55	29.880	73	70	73	7.9	57.52	18.11	−149.92	6.4306
4	1870 Aug. 4	23 7 59	29.880	73	70	73	7.9	57.47	22.26	−127.44	6.4305
5	1871 July 17	20 2 20	29.886	74	72	73	8.0	62.84	46.34	− 79.34	6.4272
6	1871 July 17	20 54 35	29.886	74	72	73	8.0	76.11	39.30	− 89.58	6.4280
7	1871 Dec. 15	4 44 45	29.986	25	23	25	8.0	66.36	41.55	− 86.20	6.4730
8	1872 Jan. 2	1 44 15	30.488	33	34	33	7.9	74.84	19.71	+141.56	6.4715
9	1872 Jan. 2	2 23 40	30.488	33	34	34	7.9	62.80	23.23	+123.93	6.4714
10	1872 Jan. 5	3 34 35	29.878	36	35	36	7.9	63.04	32.10	+101.87	6.4609
11	1872 June 30	20 42 38	30.086	80	78	83	7.1	58.32	40.90	− 87.14	6.4256
12	1872 June 30	21 13 28	30.086	80	78	83	7.1	62.95	36.74	− 93.65	6.4259
13	1872 July 19	19 32 52	30.046	72	71	73	7.29	48.69	50.24	− 73.98	6.4297
14	1872 July 19	20 9 28	30.046	72	71	73	7.29	58.08	45.38	− 80.67	6.4305
15	1873 Jan. 9	3 38 48	30.020	26	24	27	7.8	52.89	32.64	+100.81	6.4732
16	1873 Jan. 10	2 18 2	30.100	23	21	23	7.95	53.11	22.60	+126.17	6.4773
17	1873 Jan. 10	2 49 58	30.100	23	21	23	7.95	52.95	26.34	+114.64	6.4772
18	1873 July 15	19 51 58	30.036	77	75	78	7.75	48.14	47.72	− 77.43	6.4266
19	1873 July 15	20 21 18	30.036	77	75	78	7.75	48.32	43.79	− 82.93	6.4272
20	1873 July 20	19 23 18	30.026	71	69	72	7.8	53.10	51.48	− 72.27	6.4310
21	1873 July 20	19 59 32	30.026	71	69	72	7.8	53.13	46.71	− 78.82	6.4317
22	1873 July 21	19 31 32	30.218	69	69	70	7.8	52.92	50.42	− 73.75	6.4339
23	1873 Dec. 15	1 43 8	30.350	40	40	40	7.8	57.80	19.20	+142.14	6.4637
24	1873 Dec. 15	2 23 2	30.350	42	40	40	7.8	53.20	23.21	+123.99	6.4635
25	1873 Dec. 18	2 54 2	30.052	42	41	43	7.8	53.63	26.85	+113.34	6.4582
26	1873 Dec. 18	3 38 48	30.052	42	41	43	7.8	53.24	32.64	+100.81	6.4579
27	1873 Dec. 21	2 4 32	30.392	29	27	30	7.9	53.01	21.18	+131.87	6.4761

TABLE II.—CORRECTIONS FOR REFRACTION.

Position Angle, p		$\frac{\sigma-s}{s}\times10^3$	$\pi-p$	Position Angle, p		$\frac{\sigma-s}{s}\times10^3$	$\pi-p$
PLATE 1.				PLATE 2.			
82°	262°	+.397	0.0	73°	253°	+.359	0.0
92	272	.394	− 4.4	83	263	.356	−3.1
102	282	.384	− 8.3	93	273	.348	−5.8
112	292	.367	−11.2	103	283	.337	−7.8
122	302	.345	−12.7	113	293	.324	−8.9
132	312	.324	−12.7	123	303	.307	−8.9
142	322	.305	−11.2	133	313	.294	−7.8
152	332	.286	− 8.3	143	323	.283	−5.8
162	342	.275	− 4.4	153	333	.275	−3.1
172	352	.272	0.0	163	343	.272	0.0
182	2	.275	+ 4.4	173	353	.275	+3.1
192	12	.286	+ 8.3	183	3	.283	+5.8
202	22	.305	+11.2	193	13	.294	+7.8
212	32	.324	+12.7	203	23	.307	+8.9
222	42	.345	+12.7	213	33	.324	+8.9
232	52	.367	+11.2	223	43	.337	+7.8
242	62	.384	+ 8.3	233	53	.348	+5.8
252	72	.394	+ 4.4	243	63	.356	+3.1
262	82	.397	0.0	253	73	.359	0.0
PLATE 3.				PLATE 4.			
30°	210°	+.300	0.0	53°	233°	+.316	0.0
40	220	.297	−1.0	63	243	.313	−1.6
50	230	.294	−1.9	73	253	.310	−3.0
60	240	.292	−2.6	83	263	.302	−4.1
70	250	.286	−3.0	93	273	.297	−4.6
80	260	.281	−3.0	103	283	.289	−4.6
90	270	.278	−2.6	113	293	.281	−4.1
100	280	.273	−1.9	123	303	.275	−3.0
110	290	.270	−1.0	133	313	.272	−1.6
120	300	.270	0.0	143	323	.270	0.0
130	310	.270	+1.0	153	333	.272	+1.6
140	320	.273	+1.9	163	343	.275	+3.0
150	330	.278	+2.6	173	353	.281	+4.1
160	340	.281	+3.0	183	3	.289	+4.6
170	350	.286	+3.0	193	13	.297	+4.6
180	0	.292	+2.6	203	23	.302	+4.1
190	10	.294	+1.9	213	33	.310	+3.0
200	20	.297	+1.0	223	43	.313	+1.6
210	30	.300	0.0	233	53	.316	0.0

TABLE II.—CORRECTIONS FOR REFRACTION. (*Continued.*)

Position Angle. p.		$\frac{\sigma-s}{s}\times 10^3$	$\pi-p$	Position Angle p		$\frac{\sigma-s}{s}\times 10^3$	$\pi-p$
		PLATE 5.				**PLATE 6.**	
101°	281°	+.560	0.0	90°	270°	+.448	0.0
111	291	.552	—10 4	100	280	.442	— 6.3
121	301	.526	—19.5	110	290	.426	—11.9
131	311	.489	—26.2	120	300	.402	—16.0
141	321	.441	—29.8	130	310	.373	—18.2
151	331	.390	—29.8	140	320	.343	—18.2
161	341	.342	—26.2	150	330	.314	—16.0
171	351	.302	—19.5	160	340	.289	—11.9
181	1	.275	—10.4	170	350	.273	— 6.3
191	11	.267	0.0	180	0	.268	0.0
201	21	.275	+10.4	190	10	.273	+ 6.3
211	31	.302	+19.5	200	20	.289	+11.9
221	41	.342	+26.2	210	30	.314	+16.0
231	51	.390	+29.8	220	40	.343	+18.2
241	61	.441	+29.8	230	50	.373	+18.2
251	71	.489	+26.2	240	60	.402	+16.0
261	81	.526	+19.5	250	70	.426	+11.9
271	91	.552	+10.4	260	80	.442	+ 6.3
281	101	.560	0.0	270	90	.448	0.0
		PLATE 7.				**PLATE 8.**	
86°	265°	+.532	0.0	142°	322°	+.334	0.0
96	276	.523	— 8.2	152	332	.332	—1.3
106	286	.502	—15.5	162	342	.329	—2.5
116	296	.472	—20.9	172	352	.326	—3.4
126	306	.434	—23.7	182	2	.320	—3.8
136	316	.392	—23.7	192	12	.311	—3.8
146	326	.356	—20.9	202	22	.305	—3.4
156	336	.324	—15.5	212	32	.302	—2.5
166	346	.303	— 8.2	222	42	.297	—1.3
176	356	.297	0.0	232	52	.296	0.0
186	6	.303	+ 8.2	242	62	.297	+1.3
196	16	.324	+15.5	252	72	.302	+2.5
206	26	.356	+20.9	262	82	.305	+3.4
216	36	.392	+23.7	272	92	.311	+3.8
226	46	.434	—23.7	282	102	.320	+3.8
236	56	.472	+20.9	292	112	.326	+3.4
246	66	.502	+15.5	302	122	.329	+2.5
256	76	.523	+ 8.2	312	132	.332	+1.3
266	86	.532	0.0	322	142	.334	0.0

TABLE II.—CORRECTIONS FOR REFRACTION. (*Continued.*)

Position Angle, p		$\frac{\sigma-s}{s}\times10^3$	$\pi-p$	Position Angle, p		$\frac{\sigma-s}{s}\times10^3$	$\pi-p$
		PLATE 9.				PLATE 10.	
124°	304°	+.349	0.0	102°	282°	+.402	0.0
134	314	.348	—1.9	112	292	.399	— 4.0
144	324	.343	—3.6	122	302	.390	— 7.5
154	334	.337	—4.8	132	312	.375	—10.1
164	344	.329	—5.5	142	322	.355	—11.5
174	354	.320	—5.5	152	332	.335	—11.5
184	4	.310	—4.8	162	342	.317	—10.1
194	14	.302	—3.6	172	352	.303	— 7.5
204	24	.299	—1.9	182	2	.292	— 4.0
214	34	.296	0.0	192	12	.289	0.0
224	44	.299	+1.9	202	22	.292	+ 4.0
234	54	.302	+3.6	212	32	.303	+ 7.5
244	64	.310	+4.8	222	42	.317	+10.1
254	74	.320	+5.5	232	52	.335	+11.5
264	84	.329	+5.5	242	62	.355	+11.5
274	94	.337	+4.8	252	72	.375	+10.1
284	104	.343	+3.6	262	82	.390	+ 7.5
294	114	.348	+1.9	272	92	.399	+ 4.0
304	124	.349	0.0	282	102	.402	0.0
		PLATE 11.				PLATE 12.	
93°	273°	+.466	0.0	86°	266°	+.416	0.0
103	283	.460	— 7.0	96	276	.411	— 5.2
113	293	.442	—13.2	106	286	.398	— 9.8
123	303	.415	—17.8	116	296	.379	—13.2
133	313	.383	—20.3	126	306	.355	—15.1
143	323	.348	—20.3	136	316	.328	—15.1
153	333	.316	—17.8	146	326	.304	—13.2
163	343	.290	—13.2	156	336	.283	— 9.8
173	353	.271	— 7.0	166	346	.272	— 5.2
183	3	.266	0.0	176	356	.267	0.0
193	13	.271	+ 7.0	186	6	.272	+ 5.2
203	23	.290	+13.2	196	16	.283	+ 9.8
213	33	.316	+17.8	206	26	.304	+13.2
223	43	.348	+20.3	216	36	.328	+15.1
233	53	.383	+20.3	226	46	.355	+15.1
243	63	.415	+17.8	236	56	.379	+13.2
253	73	.442	—13.2	246	66	.398	+ 9.8
263	83	.460	— 7.0	256	76	.411	+ 5.2
273	93	.466	0.0	266	86	.416	0.0

TABLE II.—CORRECTIONS FOR REFRACTION. (*Continued.*)

Position Angle, p		$\frac{\sigma-s}{s} \times 10^3$	$\pi - p$	Position Angle, p		$\frac{\sigma-s}{s} \times 10^3$	$\pi - p$
PLATE 13.				PLATE 14.			
106°	286°	÷.656	0.0	99°	279°	÷.548	0.0
116	296	.645	−13.7	109	289	.537	− 9.7
126	306	.611	−25.8	119	299	.513	−18.3
136	316	.560	−34.7	129	309	.477	−24.7
146	326	.495	−39.5	139	319	.432	−28.1
156	336	.430	−39.5	149	329	.383	−28.1
166	346	.366	−34.7	159	339	.340	−24.7
176	356	.315	−25.8	169	349	.302	−18.3
186	6	.280	−13.7	179	359	.278	− 9.7
196	16	.269	0.0	189	9	.270	0.0
206	26	.280	÷13.7	199	19	.278	÷ 9.7
216	36	.315	÷25.8	209	29	.302	÷18.3
226	46	.366	÷34.7	219	39	.340	÷24.7
236	56	.430	÷39.5	229	49	.383	÷28.1
246	66	.495	÷39.5	239	59	.432	÷28.1
256	76	.560	÷34.7	249	69	.477	−24.7
266	86	.611	÷25.8	259	79	.513	÷18.3
276	96	.645	÷13.7	269	89	.537	÷ 9.7
286	106	.656	0.0	279	99	.548	0.0
PLATE 15.				PLATE 16.			
101°	281°	÷.419	0.0	126°	306°	÷.351	0.0
111	291	.415	− 4.3	136	316	.350	− 1.8
121	301	.404	− 8.1	146	326	.345	− 3.5
131	311	.389	−10.9	156	336	.339	− 4.7
141	321	.368	−12.4	166	346	.330	− 5.3
151	331	.347	−12.4	176	356	.321	− 5.3
161	341	.327	−10.9	186	6	.312	− 4.7
171	351	.312	− 8.1	196	16	.306	− 3.5
181	1	.300	− 4.3	206	26	.302	− 1.8
191	11	.297	0.0	216	36	.300	0.0
201	21	.300	÷ 4.3	226	46	.302	÷ 1.8
211	31	.312	÷ 8.1	236	56	.306	÷ 3.5
221	41	.327	÷10.9	246	66	.312	÷ 4.7
231	51	.347	÷12.4	256	76	.321	÷ 5.3
241	61	.368	÷12.4	266	86	.330	÷ 5.3
251	71	.389	÷10.9	276	96	.339	÷ 4.7
261	81	.404	÷ 8.1	286	106	.345	÷ 3.5
271	91	.415	÷ 4.3	296	116	.350	÷ 1.8
281	101	.419	0.0	306	126	.351	0.0

TABLE II.—CORRECTIONS FOR REFRACTION. *(Continued.)*

Position Angle, p		$\frac{\sigma-s}{s}\times10^3$	$\pi-p$	Position Angle, p		$\frac{\sigma-s}{s}\times10^3$	$\pi-p$
		PLATE 17.				PLATE 18.	
115°	295°	+.372	0 0	103°	283°	+.590	0.0
125	305	.371	− 2.6	113	293	.582	−11.4
135	315	.366	− 4.9	123	303	.552	−21.4
145	325	.354	− 6.6	133	313	.510	−28.8
155	335	.342	− 7.5	143	323	.457	−32.8
165	345	.330	− 7.5	153	333	.400	−32.8
175	355	.318	− 6.6	163	343	.347	−28.8
185	5	.309	− 4.9	173	353	.304	−21.4
195	15	.303	− 2.6	183	3	.277	−11.4
205	25	.300	0.0	193	13	.267	0.0
215	35	.303	+ 2.6	203	23	.277	+11.4
225	45	.309	+ 4.9	213	33	.304	+21.4
235	55	.318	+ 6.6	223	43	.347	+28.8
245	65	.330	+ 7.5	233	53	.400	+32.8
255	75	.342	+ 7.5	243	63	.457	+32.8
265	85	.354	+ 6.6	253	73	.510	+28.8
275	95	.366	+ 4.9	263	83	.552	+21.4
285	105	.371	+ 2.6	273	93	.582	+11.4
295	115	.372	0.0	283	103	.590	0.0
		PLATE 19.				PLATE 20.	
97°	277°	+.513	0.0	108°	288°	+.697	0.0
107	287	.505	− 8.7	118	298	.686	−15.0
117	297	.483	−16.3	128	308	.648	−28.2
127	307	.451	−22.0	138	318	.591	−38.0
137	317	.411	−25.0	148	328	.521	−43.2
147	327	.368	−25.0	158	338	.448	−43.2
157	337	.328	−22.0	168	348	.378	−38.0
167	347	.296	−16.3	178	358	.321	−28.2
177	357	.275	− 8.7	188	8	.283	−15.0
187	7	.267	0.0	198	18	.270	0.0
197	17	.275	+ 8.7	208	28	.283	+15.0
207	27	.296	+16.3	218	38	.321	+28.2
217	37	.328	+22.0	228	48	.378	+38.0
227	47	.368	+25.0	238	58	.448	+43.2
237	57	.411	+25.0	248	68	.521	+43.2
247	67	.451	+22.0	258	78	.591	+38.0
257	77	.483	+16.3	268	88	.648	+28.2
267	87	.505	+ 8.7	278	98	.686	+15.0
277	97	.513	0.0	288	108	.697	0.0

TABLE II.—CORRECTIONS FOR REFRACTION. *(Continued.)*

PLATE 21.

Position Angle, p.		$\frac{\sigma-s}{s} \times 10^3$	$\pi - p$
101°	281°	+.575	0.0″
111	291	.564	−10.7
121	301	.537	−20.2
131	311	.497	−27.2
141	321	.448	−30.9
151	331	.391	−30.9
161	341	.346	−27.2
171	351	.305	−20.2
181	1	.278	−10.7
191	11	.270	0.0
201	21	.278	+10.7
211	31	.305	+20.2
221	41	.346	+27.2
231	51	.394	+30.9
241	61	.448	+30.9
251	71	.497	+27.2
261	81	.537	+20.2
271	91	.564	+10.7
281	101	.575	0.0

PLATE 22.

Position Angle, p.		$\frac{\sigma-s}{s} \times 10^3$	$\pi - p$
106°	286°	+.669	0.0″
116	296	.658	−14.0
126	306	.623	−26.4
136	316	.571	−35.5
146	326	.506	−40.4
156	336	.435	−40.4
166	346	.372	−35.5
176	356	.318	−26.4
186	6	.283	−14.0
196	16	.272	0.0
206	26	.283	+14.0
216	36	.318	+26.4
226	46	.372	+35.5
236	56	.435	+40.4
246	66	.506	+40.4
256	76	.571	+35.5
266	86	.623	+26.4
276	96	.658	+14.0
286	106	.669	0.0

PLATE 23.

Position Angle, p.		$\frac{\sigma-s}{s} \times 10^3$	$\pi - p$
142°	322°	+.326	0.0″
152	332	.325	−1.2
162	342	.323	−2.3
172	352	.317	−3.1
182	2	.311	−3.5
192	12	.306	−3.5
202	22	.300	−3.1
212	32	.294	−2.3
222	42	.292	−1.2
232	52	.291	0.0
242	62	.292	+1.2
252	72	.294	+2.3
262	82	.300	+3.1
272	92	.306	+3.5
282	102	.311	+3.5
292	112	.317	+3.1
302	122	.323	+2.3
312	132	.325	+1.2
322	142	.326	0.0

PLATE 24.

Position Angle, p.		$\frac{\sigma-s}{s} \times 10^3$	$\pi - p$
124°	304°	+.343	0.0″
134	314	.342	−1.9
144	324	.338	−3.5
154	334	.331	−4.8
164	344	.323	−5.4
174	354	.314	−5.4
184	4	.305	−4.8
194	14	.297	−3.5
204	24	.293	−1.9
214	34	.291	0.0
224	44	.293	+1.9
234	54	.297	+3.5
244	64	.305	+4.8
254	74	.314	+5.4
264	84	.323	+5.4
274	94	.331	+4.8
284	104	.338	+3.5
294	114	.342	+1.9
304	124	.343	0.0

TABLE II.—CORRECTIONS FOR REFRACTION. (*Continued.*)

Position Angle, p		$\frac{\sigma-s}{s} \times 10^3$	$\pi - p$	Position Angle, p		$\frac{\sigma-s}{s} \times 10^3$	$\pi - p$
		PLATE 25.				PLATE 26.	
			"				"
113°	293°	+.361	0.0	101°	281°	+.405	0.0
123	303	.358	−2.6	111	291	.401	− 4.1
133	313	.353	−4.9	121	301	.390	− 7.8
143	323	.342	−6.6	131	311	.375	−10.5
153	333	.330	−7.5	141	321	.356	−11.9
163	343	.318	−7.5	151	331	.336	−11.9
173	353	.304	−6.6	161	341	.316	−10.5
183	3	.296	−4.9	171	351	.301	− 7.8
193	13	.289	−2.6	181	1	.290	− 4.1
203	23	.287	0.0	191	11	.287	0.0
213	33	.289	+2.6	201	21	.290	+ 4.1
223	43	.296	+4.9	211	31	.301	+ 7.8
233	53	.304	+6.6	221	41	.316	+10.5
243	63	.318	+7.5	231	51	.336	+11.9
253	73	.330	+7.5	241	61	.356	+11.9
263	83	.342	+6.6	251	71	.375	+10.5
273	93	.353	+4.9	261	81	.390	+ 7.8
283	103	.358	+2.6	271	91	.401	+ 4.1
293	113	.361	0.0	281	101	.405	0.0
		PLATE 27.					
			"				
132°	312°	+.344	0.0				
142	322	.343	−1.6				
152	332	.338	−3.0				
162	342	.332	−4.0				
172	352	.326	−4.5				
182	2	.317	−4.5				
192	12	.311	−4.0				
202	22	.305	−3.0				
212	32	.300	−1.6				
222	42	.299	0.0				
232	52	.300	+1.6				
242	62	.305	+3.0				
252	72	.311	+4.0				
262	82	.317	+4.5				
272	92	.326	+4.5				
282	102	.332	+4.0				
292	112	.338	+3.0				
302	122	.343	+1.6				
312	132	.344	0.0				

TABLE III.—CORRECTIONS FOR PRECESSION, ETC., TO 1872 AND ZERO CORRECTIONS.

Plate No.	Precession, etc.		Zero Correction ½(East + West.)		Special Correction Mean.	Adopted Mean.	
	Position Angle Correction.	Distance Factor × 10³					
1	−7."	+.0675	+20	46"	−36"	+20	10'
2	−7.	+.0676	19	13	−40	18	33
3	−9.	−.0673	20	41	−45	19	56
4	−9.	+.0673	20	41	−36	20	5
5	−2.	+.0657	22	30	−31	21	59
6	−2.	+.0657	27	28	−25	27	3
7	−4.	−.0481	23	58	−33	23	25
8	+4.	−.0605	27	3	−34	26	29
9	+4.	−.0605	22	41	−30	22	11
10	+6.	−.0620	22	48	−24	22	24
11	+4.	+.0592	21	6	−34	20	32
12	+4.	+.0592	22	51	−25	22	26
13	−5.	+.0564	17	10	−46	16	24
14	−5.	−.0664	20	45	−41	20	4
15	−6.	−.0640	19	9	−52	18	17
16	+7.	−.0643	19	14	−49	18	25
17	+7.	−.0643	19	9	−49	18	20
18	−5.	−.0653	17	5	−28	16	37
19	−5.	+.0653	17	17	−30	16	47
20	−8.	+.0666	18	37	−40	17	57
21	−8.	−.0666	18	52	−39	18	13
22	−8.	−.0667	18	38	−44	17	54
23	−9.	−.0485	20	41	−34	20	7
24	−9.	−.0485	18	59	−37	18	22
25	−8.	−.0509	19	10	−33	18	37
26	−8.	−.0509	19	2	−36	18	26
27	−6.	−.0532	18	59	−25	18	34

TABLE IV.—TANGENT CORRECTION.

This correction is always *negative* and is here expressed in terms of the *fourth* decimal place of the micrometer readings.

Distance.	0.	1.	2.	3.	4.	5.	6.	7.	8.	9.
2	− 0	− 0	− 0	− 0	− 0	− 1	− 1	− 1	− 1	− 1
3	2	2	2	2	2	3	3	3	3	3
4	4	4	4	5	5	6	6	6	7	7
5	8	8	8	9	9	10	10	11	11	12
6	13	13	14	15	16	17	17	18	19	20
7	21	22	23	24	25	26	27	28	30	31
8	32	34	35	36	37	38	40	41	42	43
9	45	46	48	50	52	53	55	57	59	61
10	62	64	65	67	69	71	73	75	77	79
11	81	83	85	87	90	93	95	98	100	103
12	106	109	112	114	117	120	123	126	129	132
13	135	138	141	145	148	151	155	158	162	165

TABLE V.—RESULTS OF THE MEASURES.

No.	Pl.	Obs. Distance East.	Corrections. Refrac.	Aberr.	Scale.	Corrected Mean.	Position Angle. E. Observed.	Mean, Corr'd.
1	7	.9397	588	—54	104	111.9964	348° 48′ 47″	259° 12′ 37″
	8	.9675	340	—68	104	.9918	49 14	16 8
(67)	9	.9666	362	—68	104	.9975	51 46	14 57
	17	.0050	388	—72	101	112.0235	56 30	15 48
					Means	112.0023		259 14 52
2 (48)	7	.0919	590	—69	—34	143.1201	41 16 6	311 39 38
3	7	.7108	614	—62	26	127.7527	328 56 50	239 20 50
	17	.7664	412	—82	28	.7921	329 4 45	23 51
(23)	23	.8744	374	—62	26	.8841	6 58	27 24
	25	.8374	399	—65	26	.8756	8 7	27 25
					Means	127.8261		239 24 52
4	2	.8221	395	—74	114	109.8648	343 49 35	254 8 57
	3	.8388	312	—74	114	.8803	48 38	9 4
(4)	4	.8311	340	—74	118	.8731	44 7	4 34
	5	.8554	550	—72	127	.9218	45 48	8 46
	6	.8652	475	—72	127	.9250	41 10	8 57
	7	.8240	571	—53	118	.8789	43 33	7 23
	8	.8686	333	—67	118	.8960	44 8	11 20
	9	.8629	352	—67	118	.8882	46 45	9 38
	10	.8524	416	—68	128	.8951	47 48	10 56
	11	.8808	488	—65	118	.9432	50 45	12 6
	12	.8970	448	+65	123	.9495	48 15	11 26
	13	.9008	599	—73	116	.9647	54 8	11 52
	14	.8952	543	—73	118	.9546	51 26	12 41
	15	.8614	431	—70	112	.9101	52 6	11 1
	16	.8910	349	—71	112	.9209	51 24	10 14
	17	.8914	374	—71	112	.9232	51 16	10 22
	18	.9247	563	—72	118	.9938	54 18	11 52
	19	.9314	520	—72	118	.9943	55 58	13 37
	21	.9056	559	—73	114	.9734	55 56	15 31
	22	.9183	613	—73	114	.9859	54 42	14 4
	23	.9564	324	—53	122	.9816	52 38	13 16
	24	.9456	345	—53	118	.9813	52 50	11 46
	25	.9559	364	—56	118	.9819	53 58	13 40
	26	.9454	416	—56	118	.9810	53 12	12 10
	27	.9460	343	—59	127	.9794	54 15	13 26
					Means	109.9381		254 11 9
5	7	.7901	533	—53	114	110.8347	23 4 15	293 27 42
	8	.7909	359	—67	118	.8256	4 20	31 8
(52)	9	.7754	386	—67	118	.8119	7 22	30 0
	10	.7926	441	—68	118	.8482	8 16	30 55
	16	.8448	387	—71	116	.8720	10 28	29 48
	17	.8508	412	—71	116	.8760	10 44	29 56
	19	.8766	546	—72	118	.9412	14 58	31 40
	23	.9017	353	—54	113	.9313	10 35	31 20
	24	.8792	379	—54	113	.9175	11 12	29 55

TABLE V.—RESULTS OF THE MEASURES. (*Continued.*)

No.	Pl.	Obs. Dist. East.	Corrections. Refrac.	Aberr.	Scale.	Corrected Mean.	Position Angle. E. Observed.	Mean. Corr'd.
5	25	.8893	400	−56	113	110.9386	23 11 44	293 31 2
(cont.)	26	.8852	438	−56	113	.9254	11 20	30 15
	27	.8884	376	−59	117	.9266	12 15	31 35
						Means 110.8874		293 30 26
6	7	.3182	529	−51	112	105.3566	15 31 10	285 54 43
(54)	9	.3179	362	−64	112	.3561	33 52	56 39
						Means 105.3564		285 55 41
7	4	.3442	310	+69	116	102.3946	350 8 7	260 28 52
	7	.3616	539	−49	122	.4145	7 27	31 32
(25)	8	.4031	310	−62	113	.4253	7 56	35 2
	9	.3756	332	−62	118	.4022	11 48	34 29
	10	.3703	395	−63	118	.4062	12 4	35 8
	15	.4174	413	−66	106	.4585	15 57	35 15
	16	.4268	333	−66	106	.4597	15 4	34 18
	17	.4256	356	−66	106	.4576	15 48	34 53
	23	.4932	306	−50	170	.5348	17 10	37 32
	24	.4791	327	−50	116	.5203	16 28	35 32
	25	.4984	347	−52	116	.5328	17 55	37 4
	26	.4730	398	−52	116	.5120	16 44	35 51
	27	.4857	323	−55	120	.5182	18 44	37 37
						Means 102.4644		260 34 51
8	7	.7521	542	−50	115	103.7926	345 34 50	255 58 44
	8	.7914	315	−63	113	.8104	34 35	256 1 34
(66)	9	.7648	334	−63	113	.7976	37 46	0 36
	10	.7516	394	−64	112	.8033	38 5	1 13
	15	.7668	409	−67	113	.8320	42 57	1 33
	16	.8307	333	−67	112	.8493	41 52	1 13
	17	.8254	356	−67	112	.8478	42 8	1 14
	23	.8912	308	−50	112	.9192	42 58	3 28
	25	.8670	347	−53	112	.9065	44 17	3 46
	27	.8446	325	−55	114	.8823	44 58	4 6
						Means 103.8441		256 1 45
9	7	.6878	516	−49	121	101.7220	13 25 4	283 48 32
(55)	8	.6954	327	−62	120	.7275	23 15	50 37
						Means 101.7248		283 49 34
10	1	.3710	456	+84	48	125.4211	321 7 36	231 28 37
	7	.3553	568	−60	48	.3876	4 25	28 27
(24)	8	.3794	370	−76	50	.4021	4 47	31 55
	9	.3792	377	−76	50	.4009	8 55	31 34
	10	.3697	418	−78	50	.3959	8 38	31 51
	15	.3773	435	−80	42	.4143	13 49	33 1
	16	.4216	381	−81	42	.4344	12 16	31 54
	17	.3995	394	−81	42	.4261	13 35	32 58
	23	.4602	365	−61	48	.4826	14 15	34 47
	25	.4608	379	−64	42	.4901	15 47	35 21

TABLE V.—RESULTS OF THE MEASURES. (Continued.)

No.	Pl.	Obs. Distance East.	Corrections. Refrac.	Aberr.	Scale.	Corrected Mean.	Position Angle. E. Observed.	Mean, Corr'd.
10 (cont.)	27	.4489	376	—67	48	125.4853	321 16 38	231 35 57
					Means	125.4309		231 32 24
11	7	.1254	543	—56	112	116.1829	324 41 14	235 5 9
	8	.1509	343	—70	115	.1828	40 50	8 3
(68)	9	.1740	352	—70	115	.1819	44 2	7 15
	10	.1596	396	—72	117	.1797	44 28	7 51
	27	.2204	350	—62	122	.2505	51 56	11 0
					Means	116.1956		235 7 52
12 (47)	7	.9796	519	—64	16	134.0055	46 54 13	317 18 2
13	7	.6570	481	—44	132	90.7067	358 25 2	268 48 25
	8	.6588	280	—55	134	.7066	25 40	52 33
(62)	9	.6555	301	—55	134	.6857	28 22	51 7
	15	.6820	375	—58	128	.7283	32 52	52 7
	16	.7198	302	—58	130	.7351	32 40	52 7
	23	.7746	276	—44	134	.8018	32 55	53 36
	25	.7842	317	—46	134	.8278	33 47	53 17
					Means	90.7417		268 51 53
14	7	.2492	550	—64	17	132.2783	312 15 45	222 39 54
	8	.3072	392	—80	18	.3163	16 52	43 48
(19)	9	.3120	394	—80	18	.3192	20 42	43 41
	10	.2980	419	—82	17	.3102	20 15	43 16
	16	.3082	398	—85	18	.3423	24 34	44 9
	23	.3940	386	—64	17	.4186	26 54	47 40
					Means	132.3308		222 43 45
15	7	.8594	449	—45	136	92.9037	21 31 16	291 55 12
(53)	8	.8820	303	—56	134	.9142	31 10	57 46
					Means	92.9090		291 56 29
16	7	.2709	419	—45	134	93.3088	31 37 36	302 1 14
	8	.2566	307	—56	132	.2951	37 26	4 12
(50)	9	.2763	326	—56	132	.3056	39 35	2 23
	17	.3133	346	—60	132	.3488	43 23	2 36
					Means	93.3146		302 2 36
17	1	.0344	289	49	122	73.0966	350 26 22	260 46 48
	7	.0406	384	—35	122	.0989	23 42	47 44
(26)	8	.0923	222	—44	118	.1204	24 12	50 48
	9	.0906	238	—44	118	.1126	27 15	50 7
	10	.0813	283	—45	117	.1175	27 6	50 36
	11	.1078	334	—43	118	.1617	30 26	51 14
	12	.1402	302	—43	118	.1751	27 58	51 5
	15	.1080	295	—48	116	.1491	33 6	51 40
	16	.1378	238	—47	120	.1599	30 48	50 27
	17	.1355	255	—47	116	.1637	31 16	50 15
	18	.1522	398	—48	118	.2196	34 28	52 21

TABLE V.—RESULTS OF THE MEASURES. (*Continued.*)

No.	Pl.	Obs. Distance East.	Refrac.	Aberr.	Scale.	Corrected Mean.	E. Observed.	Mean, Corr'd.
17 (*cont.*)	21	.1310	393	+49	120	73.1852	350° 35′ 38″	260° 54′ 38″
	23	.2014	219	−36	118	.2169	32 12	52 45
	24	.1873	234	−36	124	.2144	32 16	51 3
	25	.1896	247	−37	122	.2192	34 14	53 16
	26	.1758	285	−37	124	.1508	33 54	52 7
	27	.1802	231	−39	122	.2103	34 47	53 28
						Means 73.1631		260 51 12
18 (70)	7	.4454	358	−34	121	70.4838	338 53 24	249 16 34
	8	.4712	212	−43	121	.4993	52 58	19 29
						Means 70.4916		249 18 2
19 (3)	1	.0580	267	+47	128	70.1077	330 4 6	240 25 5
	2	.0700	248	+47	128	.1077	7 33	26 27
	3	.0774	204	+47	122	.1115	6 8	26 38
	4	.0647	220	+47	128	.1025	0 54	21 35
	5	.1102	305	+46	124	.1518	4 42	27 37
	6	.1109	281	+46	122	.1518	329 59 52	27 38
	7	.0726	339	−34	124	.1126	330 0 50	24 59
	8	.0876	208	−42	121	.1159	2 26	29 46
	9	.0998	215	−42	121	.1217	5 32	28 13
	10	.0778	246	−43	121	.1058	6 2	29 28
	11	.1077	284	−42	121	.1526	10 7	31 22
	12	.1453	272	−42	125	.1878	7 58	30 48
	13	.1475	320	−47	122	.1850	13 8	31 13
	14	.1367	306	−47	121	.1747	10 26	31 28
	15	.1022	257	−45	114	.1319	10 40	30 8
	16	.1166	216	−45	120	.1372	10 40	29 45
	17	.1118	227	−45	122	.1391	10 50	30 23
	18	.1546	308	−46	121	.2008	14 15	31 46
	19	.1668	297	−46	121	.2046	16 20	33 59
	20	.1500	325	−47	121	.1869	14 8	33 34
	21	.1372	311	−47	126	.1861	15 46	35 32
	22	.1434	325	−47	122	.1946	14 36	33 53
	23	.1720	205	−34	128	.1957	12 25	32 54
	24	.1674	212	−34	128	.1972	12 35	31 30
	25	.1588	220	−36	128	.1886	14 0	33 6
	26	.1517	248	−36	128	.1865	12 38	31 20
	27	.1578	213	−37	128	.1901	13 33	33 7
						Means 70.1566		240 30 17
20 (69)	7	.1887	329	−31	102	65.2231	337 26 12	247 50 20
	8	.2010	196	−39	102	.2253	25 55	53 19
						Means 65.2242		247 51 50
21 (27)	1	.5772	302	68	126	100.6260	54 59 34	325 19 37
	4	.5922	273	68	126	.6404	56 8	17 9
	7	.6514	362	−48	126	.6769	53 32	16 55
	8	.6430	333	−61	126	.6787	54 2	20 47
	9	.6456	345	−61	126	.6764	57 38	20 17

Table V.—Results of the Measures. (*Continued.*)

No.	Pl.	Obs. Distance East.	Corrections. Refrac.	Aberr.	Scale.	Corrected Mean.	Position Angle. E. Observed.	Mean, Corr'd.
21 (*cont.*)	10	.6574	351	−63	126	100.6911	54 58 8	325 20 57
	11	.6470	345	·· 60	126	.6983	58 38	19 20
	12	.6690	308	·· 60	126	.7118	56 40	19 17
	13	.6744	504	·· 67	124	.7381	55 3 14	19 39
	14	.6916	405	·· 67	123	.7303	54 59 16	19 50
	15	.6785	362	−65	121	.7066	55 1 5	19 57
	16	.6796	347	−65	121	.7126	54 59 42	18 42
	17	.6682	357	−65	121	.7003	59 35	18 45
	18	.6978	449	·· 66	126	.7580	55 2 2	18 14
	20	.6983	546	·· 67	123	.7497	0 55	19 17
	23	.7101	328	−49	126	.7507	54 58 48	19 1
	24	.7122	340	−49	126	.7428	59 4	18 8
	25	.7163	344	−51	126	.7503	59 50	19 5
	26	.7176	350	−51	126	.7518	59 45	18 24
	27	.7234	343	−54	128	.7438	55 0 56	19 48
					Means	100.7117		325 19 9
22 (56)	7	.7576	305	−32	108	66.7887	30 1 18	300 25 13
	8	.7700	219	−40	111	.7955	0 27	27 28
	9	.7520	233	−40	105	.7845	4 54	27 32
					Means	66.7896		300 26 44
23 (5)	1	.3805	216	·· 41	104	60.4152	25 21 15	295 41 38
	3	.3808	162	·· 41	97	.4107	22 44	43 18
	4	.3853	168	·· 41	104	.4162	18 10	39 11
	5	.4130	325	·· 40	106	.4634	19 54	42 18
	6	.4188	248	·· 40	104	.4581	14 52	42 4
	7	.4166	285	−29	102	.4439	18 55	42 31
	8	.4165	198	−37	102	.4526	17 54	45 0
	9	.4380	210	−37	102	.4533	19 25	43 23
	10	.4267	239	−37	102	.4589	21 44	44 40
	11	.4628	264	·· 36	102	.5068	22 44	43 36
	12	.4777	230	·· 36	102	.5125	20 6	42 33
	13	.4764	391	·· 40	104	.5325	27 32	44 16
	14	.4729	316	·· 40	104	.5201	23 24	44 14
	15	.4660	249	−39	98	.4950	24 22	43 38
	16	.4792	212	−39	102	.5038	23 40	42 41
	17	.4796	225	−39	102	.5023	23 53	43 6
	18	.5033	348	·· 40	102	.5626	25 48	43 17
	19	.5227	296	·· 40	102	.5641	27 30	44 25
	20	.4982	417	·· 40	104	.5472	26 22	44 45
	21	.5014	335	·· 40	100	.5401	28 14	46 47
	22	.4890	333	·· 40	100	.5475	25 48	44 39
	23	.5384	193	−29	104	.5591	22 48	43 15
	24	.5270	207	−29	104	.5511	22 52	42 16
	25	.5296	218	−31	104	.5577	24 25	43 48
	26	.5280	240	−31	104	.5548	24 14	42 44
	27	.5148	206	−32	105	.5498	24 50	43 48
					Means	60.5030		295 43 23

TABLE V.—RESULTS OF THE MEASURES. (*Continued.*)

No.	Pl.	Obs. Distance East	Refrac.	Aberr.	Scale.	Corrected Mean.	E. Observed	Mean, Corr'd.
24	7	.4443	236	−27	100	55.4739	314° 20' 6"	224° 43' 26"
	8	.4552	165	−34	96	.4763	19 44	46 43
(36)	11	.4711	195	−33	96	.5028	26 53	49 7
	12	.5088	194	−33	101	.5267	26 20	49 35
	13	.4736	200	−37	96	.5079	31 14	48 24
	14	.4822	200	−37	96	.5043	27 14	48 58
	15	.4446	186	−36	96	.4774	29 40	48 44
	16	.4592	167	−36	98	.4746	28 56	47 44
	17	.4640	171	−36	98	.4937	28 54	48 12
	23	.5202	162	−27	100	.5342	32 26	52 22
	24	.5163	163	−27	96	.5322	30 56	50 10
	25	.5047	165	−28	100	.5296	34 15	53 16
	26	.5170	180	−28	100	.5355	32 12	51 1
	27	.5112	166	−30	102	.5348	32 34	51 33
					Means	55.5074		224 49 14
25	7	.0398	200	−20	114	42.0643	24 49 17	295 12 39
	8	.0376	137	−25	114	.0622	48 00	14 41
(61)	17	.0948	157	−27	109	.1129	53 26	13 22
	23	.1240	134	−20	114	.1450	51 30	13 2
	27	.1029	143	−22	117	.1459	56 18	14 21
					Means	42.1061		295 13 37
26	1	.2534	240	−51	128	75.2881	300 24 8	210 45 19
	2	.2327	239	−51	131	.2736	26 50	46 10
(2)	3	.2516	225	−51	131	.2855	25 44	46 26
	4	.2534	231	−51	131	.2880	20 45	41 30
	5	.2644	225	−49	131	.3017	24 46	47 17
	6	.2741	236	−49	132	.3067	19 57	47 17
	7	.2307	278	−36	132	.2629	20 36	44 45
	8	.2465	228	−46	132	.2684	21 35	49 0
	9	.2460	223	−46	132	.2661	24 53	47 34
	10	.2356	226	−47	132	.2606	25 10	48 30
	11	.2472	234	−45	134	.2868	30 55	51 39
	12	.2527	236	−45	132	.2879	28 00	51 14
	13	.2780	224	−50	130	.3041	34 24	51 28
	14	.2658	233	−50	134	.3029	30 5	50 46
	15	.2260	235	−48	130	.2592	31 37	50 19
	16	.2389	226	−48	130	.2594	30 34	49 20
	17	.2277	227	−48	130	.2559	31 20	50 10
	18	.2530	225	−49	132	.2935	34 4	52 13
	19	.2652	233	−49	134	.3060	36 22	53 49
	20	.2452	221	−50	134	.2889	35 8	54 15
	21	.2718	230	−50	136	.3019	36 10	55 15
	22	.2698	226	−50	131	.3067	35 5	54 38
	23	.2630	222	−37	134	.2862	33 25	53 33
	24	.2756	220	−37	134	.3036	33 37	52 15
	25	.2821	218	−38	134	.2998	34 48	54 5
	26	.2598	226	−38	131	.2866	32 53	52 2
	27	.2662	227	−40	131	.2940	34 35	53 32
					Means	75.2861		210 50 10

TABLE V.—RESULTS OF THE MEASURES. (*Continued.*)

| No. | Pl. | Obs. Distance East | Corrections. | | | Corrected Mean. | Position Angle. | |
			Refrac.	Aberr.	Scale.		E. Observed.	Mean, Corr'd
27 (46)	7	.6608	318	—49	126	100.6861	70° 15′ 12″	340° 39′ 22″
	8	.6489	332	—61	126	.6819	16 00	43 5
						Means 100.6840		340 41 14
28 (60)	7	.6276	169	—19	110	39.6272	37 57 28	308 20 52
29 (28)	1	.2960	338	-60	129	88.3437	72 26 44	342 47 16
	7	.3690	275	—42	128	.3925	20 4	43 55
	8	.3493	291	—53	124	.3806	21 40	48 28
	9	.3647	293	—53	124	.3960	23 34	46 37
	10	.3541	280	—55	124	.3913	25 48	48 19
	11	.3354	259	-52	124	.3853	24 40	45 16
	12	.3578	244	-52	124	.3949	22 35	45 27
	17	.3858	295	—57	122	.4162	25 42	45 2
	23	.4084	286	-43	129	.4248	24 28	45 25
	25	.3914	282	—45	129	.4227	25 54	45 16
	27	.3941	293	—47	130	.4290	27 10	45 54
						Means 88.3979		342 46 5
30 (59)	7	.9032	113	—14	—13	29.8995	50 28 7	320 51 22
31 (14)	1	.7500	126	-27	112	40.7834	293 8 58	203 31 14
	2	.7624	126	-28	116	.7903	14 36	33 32
	3	.7477	122	-27	116	.7743	11 8	31 57
	4	.7442	124	-27	116	.7694	7 55	28 47
	5	.7609	115	-27	116	.7816	14 13	35 53
	6	.7589	122	-27	116	.7841	8 8	35 43
	7	.7037	141	—20	116	.7327	9 40	33 46
	8	.7353	124	—25	116	.7583	9 35	37 28
	9	.7476	122	—25	116	.7650	14 42	37 15
	10	.7319	119	—25	116	.7492	12 44	36 58
	11	.7584	118	-24	116	.7742	21 5	42 35
	12	.7443	121	-24	116	.7731	20 5	42 39
	13	.7525	113	—27	116	.7780	24 25	42 19
	14	.7455	117	-27	116	.7650	21 20	42 49
	15	.7176	123	—26	112	.7411	22 50	41 48
	16	.7306	123	—26	112	.7469	20 56	40 0
	17	.7286	123	—26	112	.7482	22 28	40 47
	18	.7440	113	-27	116	.7796	27 16	45 2
	19	.7474	117	-27	116	.7734	28 10	46 14
	20	.7566	113	-27	116	.7824	26 16	45 2
	21	.7655	115	27	116	.7776	28 46	47 38
	22	.7633	114	27	116	.7828	27 17	46 16
	23	.7601	122	—20	116	.7802	24 49	45 22
	24	.7610	120	—20	116	.7862	25 38	44 22
	25	.7514	117	—21	116	.7737	27 57	46 55
	26	.7580	119	—21	116	.7818	25 18	44 47
	27	.7570	124	—22	116	.7778	27 0	46 13
						Means 40.7707		203 40 30

TABLE V.—RESULTS OF THE MEASURES. (Continued.)

No.	Pl.	Obs. Distance East.	Refrac.	Aberr.	Scale.	Corrected Mean.	E. Observed.	Mean, Corr'd.
32	7	.7052	137	—21	118	42.7267	67° 44' 7"	338° 8' 7"
	8	.6935	540	—26	118	.7177	43 55	10 45
(57)	17	.7254	144	—27	118	.7437	47 56	6 42
	25	.7296	138	—22	118	.7569	45 28	4 24
						Means 42.7362		338 7 30
33	1	.8902	41	— 7	44	10.9237	324 42 12	235 2 48
	2	.8972	38	— 7	40	.9050	49 32	7 56
(8)	3	.8938	32	7	44	.9010	39 13	0 20
	5	.9316	45	7	43	.9331	54 25	17 20
	6	.9358	43	— 7	44	.9394	49 6	17 7
	7	.8984	51	— 5	44	.9073	52 50	15 8
	8	.9037	32	— 7	40	.9127	56 38	24 33
	10	.8982	37	— 7	42	.9073	59 38	23 50
	11	.9554	43	7	40	.9677	325 3 26	29 8
	12	.9818	41	7	44	.9837	10 45	32 14
	13	.9508	46	— 7	40	.9623	16 12	32 47
	14	.9428	45	7	40	.9598	16 42	37 24
	15	.8973	39	— 7	39	.9169	22 13	37 54
	16	.9206	33	— 7	44	.9333	16 55	35 0
	17	.9386	35	— 7	44	.9395	16 46	35 51
	18	.9682	45	7	43	.9827	24 42	43 44
	19	.9952	45	7	40	.9962	34 57	51 28
	21	.9554	46	7	40	.9618	22 14	40 36
	22	.9702	48	7	37	.9840	32 20	53 46
	23	.9872	32	— 5	40	.9913	27 0	46 21
	24	.9924	33	— 5	40	.9945	21 25	41 1
	25	.9967	34	— 6	40	.9984	23 52	43 23
	26	.9902	38	— 6	40	.9892	26 32	43 57
	27	.9715	33	— 6	43	.9796	24 17	43 34
						Means 10.9529		235 31 33
34 (63)	7	.1168	251	—40	126	84.1374	84 31 6	354 54 41
35 (65)	7	.1004	147	—24	108	49.1200	83 19 12	353 43 19
36	1	.2456	368	63	141	93.2954	87 41 2	358 1 12
	2	.2324	259	63	132	.2742	42 46	1 57
(29)	4	.2404	265	63	132	.2842	37 7	357 57 45
	7	.3016	278	—45	132	.3314	33 57	57 29
	8	.2834	300	—56	136	.3138	34 12	358 1 25
	9	.2880	295	—56	137	.3154	57 10	357 59 55
	10	.2808	276	—58	137	.3127	38 15	358 0 55
	11	.2680	251	55	136	.3108	37 24	357 58 33
	12	.2726	250	55	136	.3118	35 32	58 25
	13	.2743	287	62	136	.3147	42 38	58 53
	14	.2576	261	62	136	.3159	39 25	358 0 15
	15	.3110	284	—60	136	.3329	39 48	357 59 4
	16	.2972	298	—60	137	.3255	38 44	58 2
	17	.2994	294	—60	137	.3295	38 24	57 50

TABLE V.—RESULTS OF THE MEASURES. (*Continued.*)

No.	Pl.	Obs. Distance East	Refrac.	Aberr.	Scale.	Corrected Mean	E. Observed	Mean, Corr'd
36 (cont.)	18	.3012	272	—61	137	93.3464	87° 40′ 6″	357° 56′ 55″
	20	.2948	299	—62	136	.3451	39 58	58 12
	21	.2763	267	—62	134	.3273	42 42	358 1 18
	22	.2919	290	—62	136	.3420	40 38	357 58 16
	23	.3070	292	—45	137	.3388	37 6	57 46
	24	.3055	289	—45	137	.3346	37 56	56 51
	25	.2954	280	—47	137	.3289	38 48	57 56
	26	.3006	273	—47	137	.3329	37 55	56 57
	27	.2916	299	—50	132	.3292	39 46	58 48
					Means	93.3215		357 58 54
37 (η)						*η Cassiopeiæ*		
38 (37)	8	.6946	147	—28	115	45.7116	267 37 44	178 4 53
39 (35)	7	.3196	68	—11	99	22.3294	96 33 44	6 59 40
	8	.2984	70	—14	99	.3159	31 48	58 59
	23	.3036	69	—11	98	.3232	29 2	47 57
	24	.2844	68	—11	98	.3043	24 49	43 41
	25	.3042	66	—11	98	.3219	25 54	44 8
					Means	22.3189		6 50 53
40 (7)	1	.2014	130	+32	112	47.2221	93 5 4	3 25 16
	4	.2002	136	+32	117	.2298	92 59 55	21 2
	5	.2178	128	+31	117	.2454	93 1 48	24 5
	6	.2004	126	+31	113	.2314	92 53 52	22 1
	7	.2520	141	—23	113	.2614	57 25	21 39
	8	.2270	151	—29	113	.2515	57 44	24 5
	10	.2341	138	—29	114	.2543	93 1 52	24 15
	11	.2067	126	—28	113	.2310	92 58 25	19 34
	12	.2110	128	—28	113	.2500	55 4	18 0
	13	.2434	137	—31	113	.2708	93 1 50	18 59
	14	.2529	130	—31	113	.2796	92 58 48	19 48
	15	.2550	141	—30	114	.2722	93 1 35	20 55
	16	.2487	149	—30	114	.2696	92 59 12	18 53
	17	.2424	147	—30	114	.2647	59 45	18 49
	18	.2614	131	—31	113	.2816	59 45	16 18
	19	.2649	128	—31	113	.2833	93 0 5	17 6
	20	.2447	143	—32	113	.2727	92 59 54	17 40
	21	.2355	131	—32	117	.2721	93 2 58	20 46
	22	.2387	139	—32	117	.2731	92 58 55	17 32
	23	.2424	147	—23	115	.2662	56 12	17 4
	24	.2366	145	—23	115	.2580	58 10	16 52
	25	.2370	140	—24	115	.2648	56 55	16 40
	26	.2378	136	—24	115	.2616	58 10	17 7
	27	.2436	149	—25	117	.2660	59 13	17 46
					Means	47.2597		3 19 40

TABLE V.—RESULTS OF THE MEASURES. (*Continued.*)

No.	Pl.	Obs. Distance East.	Corrections			Corrected Mean.	Position Angle	
			Refrac.	Aberr.	Scale.		E. Observed.	Mean, Corr'd.
41	1	.4222	211	-52	134	76.4554	92 35 20	2 55 26
	2	.4188	215	-52	135	.4545	36 54	56 5
(6)	3	.4172	223	-51	135	.4576	35 35	56 32
	4	.4241	220	-51	135	.4649	30 5	51 18
	5	.4446	207	-50	136	.4792	32 34	54 52
	6	.4312	204	-50	135	.4681	25 20	52 52
	7	.4584	229	-37	135	.4815	27 40	51 41
	8	.4498	245	-46	135	.4787	28 18	54 55
	9	.4465	238	-46	136	.4757	31 55	54 21
	10	.4546	223	-47	136	.4860	31 57	54 44
	11	.4441	203	-45	135	.4799	31 32	52 10
	12	.4296	206	-45	134	.4654	28 25	51 3
	13	.4602	222	-51	136	.4998	35 0	52 15
	14	.4574	210	-51	135	.4999	31 50	52 34
	15	.4574	228	-49	136	.4876	32 44	51 55
	16	.4665	241	-49	136	.4943	32 30	51 45
	17	.4592	238	-49	136	.4911	31 52	51 23
	18	.4790	212	-50	135	.5119	33 58	49 59
	19	.4828	207	-50	135	.5191	32 50	50 38
	20	.4713	231	-51	135	.5124	33 55	51 35
	21	.4512	184	-51	135	.4951	35 53	54 48
	22	.4626	225	-51	135	.5064	33 32	51 30
	23	.4722	238	-37	135	.4976	30 00	50 32
	24	.4693	234	-37	135	.4951	31 12	50 1
	25	.4516	226	-39	135	.4874	31 34	50 57
	26	.4692	221	-39	135	.4991	30 26	49 35
	27	.4621	243	-41	135	.4930	32 32	51 36
					Means	76.4865		2 52 29
42	7	.5825	354	-57	118	117.5976	91 30 23	1 54 20
(45)	9	.5582	367	-71	119	.5927	34 5	56 50
					Means	117.5952		1 55 35
43	1	.6092	180	-44	104	65.6412	264 5 16	174 26 33
	3	.6057	190	-44	104	.6376	6 54	27 35
(11)	4	.6130	186	-44	104	.6408	3 20	24 1
	5	.6043	194	-43	104	.6305	7 28	29 32
	6	.6016	179	-43	104	.6326	1 35	29 11
	7	.5218	195	-32	104	.5597	0 36	24 55
	8	.5589	213	-40	105	.5825	3 37	30 34
	9	.5580	210	-40	105	.5847	5 54	28 53
	11	.5440	177	-39	104	.5711	11 36	33 11
	12	.5334	176	-39	105	.5688	10 12	33 3
	13	.5603	213	-44	105	.5938	16 40	32 58
	14	.5433	190	-44	106	.5685	13 46	33 24
	15	.5220	202	-42	105	.5517	11 34	30 46
	16	.5204	212	-42	105	.5497	12 14	31 3
	18	.5168	197	-43	105	.5484	17 10	34 11
	19	.5284	184	-43	105	.5562	18 36	35 26
	22	.5330	216	-44	103	.5557	17 23	35 54

TABLE V.—RESULTS OF THE MEASURES. (*Continued.*)

No.	Pl.	Obs. Distance East.	Corrections.			Corrected Mean.	Position Angle.	
			Refrac.	Aberr.	Scale.		E. Observed.	Mean, Corr'd.
43	23	.5340	207	−32	104	65.5599	264 16 4	174 36 4
(*cont.*)	24	.5347	206	−32	104	.5594	15 25	34 21
	25	.5284	198	−33	104	.5492	17 5	35 50
	26	.5242	195	−33	104	.5435	15 50	34 48
	27	.5228	212	−35	104	.5445	16 18	35 40
						Means 65.5786		174 31 43
44	1	.9402	268	+66	137	97.9799	264 55 34	175 16 23
	2	.9474	271	+66	135	.9909	57 54	17 24
(9)	4	.9433	277	+66	136	.9821	51 58	12 59
	7	.8776	292	−47	138	.9071	51 50	15 42
	8	.8822	317	−59	139	.9141	53 0	19 53
	9	.8862	312	−59	139	.9134	56 20	18 56
	10	.8748	297	−61	139	.9010	56 10	19 3
	11	.8674	264	−58	139	.9000	265 0 26	21 26
	12	.8668	262	+58	140	.9070	264 58 52	21 37
	14	.8757	282	+65	140	.9215	265 0 42	21 4
	15	.8552	300	−63	139	.8852	1 7	20 18
	16	.8522	315	−63	139	.8829	0 14	19 32
	18	.8559	293	+64	139	.8992	6 2	22 33
	19	.8486	273	+64	139	.8930	6 4	23 10
	20	.8400	331	−65	139	.8806	5 46	23 56
	21	.8808	288	+65	136	.9193	7 20	25 47
	22	.8776	316	−65	136	.9133	5 16	23 25
	23	.8574	308	−47	139	.8918	3 23	23 38
	24	.8664	306	−47	137	.8900	3 8	22 8
	25	.8569	296	−50	137	.8821	4 32	23 44
	26	.8557	290	−50	137	.8849	3 47	22 37
	27	.8500	316	−52	136	.8870	5 0	24 3
						Means 97.9103		175 20 53
45	6	.1429	37	+ 6	34	9.1477	208 13 4	118 41 1
	8	.1377	30	− 6	34	.1394	207 56 30	23 4
(16)	9	.1502	32	− 6	34	.1525	57 26	20 56
	13	.0788	58	+ 6	33	.0945	208 10 36	28 55
	15	.0882	37	− 6	41	.0962	207 58 2	17 20
	16	.0817	32	− 6	33	.0863	208 1 58	22 19
	17	.0743	34	− 6	34	.0860	1 20	17 39
	20	.0283	62	+ 6	37	.0361	20 50	39 58
	22	.0427	59	+ 6	34	.0342	20 15	36 24
	24	.0478	31	− 4	37	.0480	23 42	42 1
	25	.0220	32	− 5	37	.0287	21 8	38 52
	27	.0550	31	− 5	34	.0568	16 24	35 2
						Means 9.0839		118 30 18
46	1	.3827	161	−40	100	59.4006	257 35 44	167 57 2
	7	.2952	179	−29	99	.3209	33 2	56 26
(39)	8	.3118	194	−36	100	.3244	34 28	168 1 16
	9	.3124	193	−36	102	.3350	36 30	167 58 51
	15	.2822	188	−38	100	.3033	42 30	168 1 39

TABLE V.—RESULTS OF THE MEASURES. (*Continued.*)

No.	Pl.	Obs. Distance East.	Corrections: Refrac.	Aberr.	Scale.	Corrected Mean.	Position Angle. E. Observed.	Mean, Corr'd.
46	16	.2818	195	−38	100	59.3082	257° 43′ 8″	168° 1′ 5″
(cont.)	17	.2806	193	−38	100	.3040	42 15	1 23
	23	.2660	189	−29	100	.2926	46 47	6 54
	24	.2737	189	−29	100	.2974	46 45	5 7
	25	.2750	184	−30	100	.2931	47 35	6 58
	27	.2612	195	−32	99	.2872	47 42	6 50
					Means	59.3152		168 2 8
47	1	.6288	99	−23	116	33.6491	238 54 35	149 16 43
	3	.6268	94	−23	116	.6514	57 20	17 49
(13)	4	.6261	92	−23	114	.6460	52 38	13 18
	5	.5845	136	−22	117	.6106	239 0 24	21 37
	6	.5927	108	−22	114	.6223	238 52 48	20 0
	7	.5300	116	−16	116	.5678	50 54	14 26
	8	.5588	112	−20	116	.5768	52 25	19 6
	9	.5590	114	−20	116	.5774	55 48	18 1
	10	.5480	115	−21	114	.5671	54 50	17 44
	11	.5332	110	−20	116	.5453	239 3 38	24 23
	12	.5132	100	−20	116	.5449	3 35	25 52
	13	.5194	159	−22	120	.5491	6 16	23 19
	15	.5109	118	−21	120	.5388	1 22	20 20
	16	.5286	115	−22	120	.5462	0 32	19 29
	17	.5182	117	−22	120	.5404	2 56	21 33
	18	.4778	142	−22	116	.5031	8 16	25 47
	19	.4936	121	−22	116	.5112	8 38	26 4
	21	.5196	136	−22	116	.5437	9 52	28 48
	22	.5118	162	−22	121	.5229	9 33	27 58
	23	.4896	109	−16	116	.5136	7 37	27 38
	24	.5016	112	−16	116	.5240	8 34	26 56
	25	.4956	112	−17	116	.5045	9 55	28 36
	26	.4980	114	−17	116	.5184	7 0	26 19
	27	.4860	114	−18	114	.5060	7 34	27 39
					Means	33.5575		149 22 28
48	7	.8952	246	−39	130	80.9302	255 29 3	165 53 25
	8	.9108	265	−49	127	.9402	30 40	57 49
(38)	9	.9053	264	−49	127	.9277	34 44	56 41
	11	.8963	230	−48	127	.9206	39 6	166 0 15
	23	.8800	260	−39	130	.9050	41 2	2 4
	24	.8652	260	−39	130	.8988	42 10	1 8
	27	.8562	267	−43	130	.8837	42 57	2 36
					Means	80.9152		165 59 8
49	4	.2514	359	−82	118	122.3031	98 34 38	8 55 30
	7	.3074	378	−59	117	.3326	30 48	54 44
(30)	8	.3116	383	−74	117	.3372	32 8	59 4
	9	.3119	373	−74	117	.3322	35 24	57 56
	10	.3144	355	−76	117	.3484	36 7	58 45
	12	.2760	336	−72	116	.3208	33 54	57 7
	15	.3237	364	−79	118	.3472	38 16	57 26

TABLE V.—RESULTS OF THE MEASURES. (*Continued.*)

No.	Pl.	Obs. Distance East.	Refrac.	Aberr.	Scale.	Corrected Mean.	E. Observed.	Mean, Corr'd.
49 (cont.)	16	.3088	378	−78	117	122.3426	98 37 35	8 56 27
	17	.3103	376	−78	117	.3407	37 16	56 26
	18	.3096	331	−80	117	.3475	39 25	56 14
	22	.2898	343	+81	116	.3410	38 23	56 46
	23	.3007	377	−59	117	.3462	35 53	56 51
	24	.2821	368	−59	117	.3204	36 58	55 43
	25	.2982	357	−62	117	.3315	37 42	56 55
	26	.3028	352	−62	116	.3301	37 8	55 59
	27	.2996	382	−65	117	.3306	38 32	57 21
					Means	122.3345		8 56 50
50 (21)	1	.7462	198	+48	130	71.7773	253 27 48	163 49 20
	7	.6584	222	−35	126	.6962	23 37	47 51
	8	.6633	236	−43	130	.6924	25 43	52 39
	9	.6752	236	−43	130	.7028	28 6	50 59
	15	.6474	231	−46	129	.6702	33 50	52 55
	16	.6326	238	−46	129	.6610	34 28	53 16
	23	.6194	231	−35	128	.6499	36 44	57 1
	24	.6235	231	−35	128	.6545	38 25	56 37
	25	.6235	227	−36	127	.6551	39 32	58 6
	27	.6134	237	−38	127	.6371	38 24	57 10
					Means	71.6797		163 53 35
51 (43)	7	.1809	257	−38	124	79.2114	106 16 8	16 40 29
52 (10)	1	.5828	279	+68	127	101.6250	253 53 48	164 14 32
	2	.5836	277	+69	128	.6284	57 4	16 7
	4	.5793	281	+69	128	.6199	51 25	11 50
	6	.5711	289	+67	127	.6131	49 10	16 29
	7	.5194	313	−49	126	.5494	49 8	13 14
	8	.5315	333	−62	126	.5613	50 30	17 23
	9	.5312	335	−62	127	.5596	53 20	15 58
	10	.5176	319	−63	127	.5422	53 46	16 35
	11	.4934	292	+60	128	.5366	58 23	19 3
	12	.4992	277	+60	128	.5386	56 32	19 1
	14	.4879	325	+68	128	.5351	59 24	19 17
	15	.4806	327	−65	128	.5098	59 38	18 20
	16	.4778	337	−66	128	.5087	58 10	17 4
	17	.5040	336	−66	128	.5373	58 24	17 30
	18	.4694	347	+66	127	.5310	254 2 44	20 3
	19	.4724	311	+66	128	.5145	4 2	20 54
	20	.4513	412	+68	128	.5045	2 42	20 48
	21	.4980	339	−67	128	.5405	4 42	23 8
	22	.4962	391	+68	128	.5308	2 20	20 36
	23	.4802	327	−49	128	.5188	0 32	20 53
	24	.4652	327	−49	128	.5063	0 58	19 50
	25	.4708	321	−51	128	.4986	2 15	21 24
	26	.4750	316	−51	128	.5058	0 30	19 21
	27	.4694	335	−51	127	.5008	1 48	21 12
					Means	101.5424		164 18 21

TABLE V.—RESULTS OF THE MEASURES. (*Continued.*)

No.	Pl.	Obs. Distance East.	Corrections.			Corrected Mean.	Position Angle.	
			Refrac.	Aberr.	Scale.		E. Observed.	Mean, Corr'd.
53	1	.5200	184	+43	112	63.5544	241 25 44″	151 47 8″
	7	.4407	216	−31	110	.4738	21 8	44 59
(20)	8	.4534	210	−38	112	.4794	22 35	49 26
	9	.4516	215	−38	112	.4856	25 42	48 29
	10	.4502	214	−39	112	.4708	26 15	48 32
	11	.4224	203	−38	112	.4519	32 29	52 29
	15	.4202	219	−41	115	.4494	30 4	49 57
	16	.4008	216	−41	115	.4286	30 50	49 17
	19	.3873	221	+41	112	.4147	38 20	54 49
	23	.4041	206	−31	112	.4266	33 12	53 44
	24	.4042	210	−31	112	.4217	32 50	52 15
	25	.4024	210	−33	112	.4232	35 56	54 35
	27	.3931	214	−34	110	.4215	34 55	54 9
						Means 63.4536		151 50 45
54	7	.2196	304	−44	138	92.2483	107 58 5	18 22 22
	8	.2086	283	−56	138	.2416	58 22	25 39
(33)	11	.1764	259	+55	138	.2280	108 2 26	23 35
	15	.2108	276	−59	138	.2340	3 14	22 53
	16	.2254	281	−59	138	.2540	3 12	22 30
	17	.2142	278	−59	138	.2355	2 45	22 16
	23	.1922	278	−45	138	.2187	2 13	22 32
	24	.1952	272	−45	138	.2251	1 52	20 58
	25	.1869	266	−47	138	.2209	3 24	22 34
	26	.2041	266	−47	143	.2398	2 44	21 46
	27	.1870	283	−49	142	.2201	4 23	23 5
						Means 92.2333		18 22 45
55	4	.4406	361	+82	114	121.4839	105 1 43	15 22 21
	6	.4420	340	+79	108	.4798	104 56 15	24 3
(31)	7	.4702	391	−58	119	.5030	57 22	21 40
	8	.4680	374	−73	119	.4960	58 56	25 58
	9	.4697	367	−73	119	.4978	105 1 38	24 37
	10	.4623	352	−75	119	.4955	2 46	25 25
	11	.4332	333	+72	114	.4742	2 42	23 54
	12	.4254	342	+72	118	.4781	0 26	23 32
	14	.4561	334	+80	118	.4949	3 46	24 33
	15	.4763	362	−77	116	.4966	5 24	24 13
	16	.4810	372	−78	114	.5059	3 46	23 0
	17	.4742	368	−78	114	.5032	3 33	23 1
	18	.4607	327	+80	119	.5091	5 32	22 36
	19	.4584	331	+80	119	.5095	6 4	23 19
	20	.4668	333	+81	114	.5112	5 50	24 5
	22	.4550	332	+81	112	.4928	4 58	23 36
	23	.4708	369	−59	114	.5027	2 44	23 26
	24	.4665	361	−59	114	.4885	3 33	22 5
	25	.4586	351	−62	114	.4899	4 25	23 37
	26	.4569	350	−62	114	.4887	3 54	22 29
	27	.4610	375	−65	113	.4901	5 28	24 26
						Means 121.4948		15 23 37

TABLE V.—RESULTS OF THE MEASURES. (*Continued.*)

No.	Pl.	Obs. Distance East.	Corrections Refrac.	Aberr.	Scale.	Corrected Mean.	Position Angle E. Observed.	Mean, Corr'd.
56	7	.7760	395	−59	117	122.8121	104 58 16	15 22 36
	9	.7907	374	−75	117	.8186	105 3 0	25 53
(32)	10	.7814	356	−76	116	.8092	4 14	26 46
	11	.7322	338	÷73	117	.7870	3 46	25 0
	12	.7300	346	÷73	116	.7773	1 5	24 35
	17	.7907	372	−79	117	.8116	5 7	24 7
	23	.7672	373	−60	117	.7992	4 8	24 56
	24	.7730	365	−60	117	.7963	4 34	23 20
	25	.7616	354	−63	117	.7898	5 38	24 48
	26	.7576	352	−63	112	.7904	4 48	23 44
	27	.7614	379	−65	111	.7910	6 18	25 28
					Means	122.7984		15 24 39
57	1	.3810	209	÷49	129	72.4157	240 5 48	150 26 10
	7	.2864	248	−35	129	.3250	0 16	23 43
(22)	8	.3166	240	−44	129	.3436	1 25	28 24
	9	.3242	245	−44	129	.3446	4 20	26 39
	15	.2574	252	−46	132	.2943	9 16	28 1
	16	.2686	248	−47	132	.2985	9 34	28 26
	23	.2635	235	−35	129	.2746	11 2	32 7
	25	.2382	241	−37	129	.2608	15 10	33 26
	27	.2430	245	−38	128	.2636	13 22	32 16
					Means	72.3134		150 28 48
58	4	.1760	133	÷32	118	48.1916	208 58 6	119 19 7
	6	.1200	194	÷32	114	.1427	57 14	25 8
(15)	8	.1102	158	−29	116	.1305	56 40	23 42
	11	.0500	205	÷28	117	.0802	209 5 0	26 14
	12	.0270	179	÷28	114	.0579	2 56	26 8
	15	.0538	195	−31	120	.0818	4 24	23 22
	16	.0434	168	−31	120	.0732	2 50	22 3
	17	.0415	179	−31	118	.0675	3 4	22 33
	22	.9971	311	÷32	119	.0489	8 28	26 42
	23	.9908	154	−23	117	.0254	5 38	26 23
	24	.0192	165	−23	117	.0450	7 47	26 13
	25	.9944	172	−24	117	.0270	8 22	27 19
	27	.0204	164	−26	114	.0371	7 54	27 10
					Means	48.0776		119 24 46
59	7	.5242	309	−40	134	83.5670	120 12 56	30 38 5
	8	.5354	253	−51	136	.5594	15 36	42 0
(41)	17	.5186	252	−54	139	.5507	18 54	38 46
	25	.4874	240	−43	136	.5191	19 42	39 19
					Means	83.5491		30 39 32
60	1	.7706	237	÷44	112	64.8060	203 11 58	113 32 58
	6	.7352	272	÷43	107	.7601	7 15	34 36
(12)	8	.7206	211	−39	112	.7481	7 2	34 39
	9	.7302	225	−39	112	.7561	10 12	33 3
	11	.6500	286	÷38	112	.6885	15 28	35 41

TABLE V.—RESULTS OF THE MEASURES. (Continued.)

No.	Pl.	Obs. Distance East.	Refrac.	Aberr.	Scale.	Corrected Mean.	E. Observed.	Mean. Corr'd.
60 (cont.)	12	.6514	249	+38	112	64.6868	203 12 52	113 34 57
	13	.6286	419	+43	112	.6774	17 52	34 42
	14	.6487	341	+43	113	.6938	14 20	34 35
	15	.6624	267	−41	118	.6929	13 10	32 36
	16	.6461	226	−42	114	.6811	13 55	33 7
	17	.6548	241	−42	114	.6782	12 57	32 37
	18	.5931	376	+42	112	.6435	16 6	33 27
	20	.5914	446	+43	112	.6506	16 50	35 17
	22	.6270	427	+43	114	.6636	17 36	35 55
	23	.6318	205	−31	112	.6613	15 4	36 8
	24	.6368	221	−31	112	.6620	15 20	34 49
	25	.6164	233	−33	112	.6483	17 45	36 15
	27	.6356	219	−34	107	.6553	17 22	36 23
					Means	64.6919		113 34 32
61 (17)	8	.6645	233	−43	130	71.6909	201 5 8	111 32 50
	9	.6765	249	−43	130	.6979	8 55	31 23
	11	.5761	319	+42	130	.6290	12 50	33 35
	12	.5901	278	+42	130	.6305	10 36	32 59
	14	.6000	381	+48	138	.6417	11 34	32 50
	15	.5767	297	−46	144	.6262	11 5	30 57
	16	.5857	249	−46	140	.6230	10 56	30 11
	17	.5706	266	−46	142	.6106	11 48	30 46
	18	.5557	418	+47	130	.6114	15 2	32 12
	21	.5838	404	+48	140	.6458	16 6	35 44
	22	.5494	474	+48	138	.5967	16 14	34 4
	23	.5739	226	−35	136	.6000	13 30	34 2
	24	.5584	244	−35	136	.5924	13 38	32 30
	25	.5390	258	−36	136	.5769	15 2	34 24
	26	.5500	287	−36	136	.5913	18 22	32 5
	27	.5699	241	−38	126	.5976	15 18	34 15
					Means	71.6226		111 32 48
62 (1)	1	.3384	341	−73	119	108.3824	225 48 44	136 9 12
	2	.3321	314	−73	116	.3743	51 30	10 41
	3	.3330	294	−73	123	.3770	50 8	10 57
	4	.3283	293	−73	119	.3705	46 32	6 50
	5	.2932	502	−71	116	.3493	49 4	11 17
	6	.2982	383	−71	116	.3467	43 50	11 3
	7	.2758	424	−52	123	.3168	43 22	7 18
	8	.2754	361	−65	123	.3045	45 20	12 20
	9	.2780	375	−65	119	.3061	47 37	10 17
	10	.2664	397	−67	119	.2986	48 5	10 39
	11	.2122	403	−64	123	.2585	52 0	13 1
	12	.2106	355	+64	119	.2545	50 30	12 59
	13	.2150	606	+72	124	.2797	57 54	13 55
	14	.2137	482	−72	125	.2738	52 43	12 35
	15	.2132	410	−69	117	.2500	52 32	11 29
	16	.2202	378	−70	125	.2544	50 57	9 53
	17	.2186	395	−70	125	.2504	52 40	11 25

TABLE V.—RESULTS OF THE MEASURES. (*Concluded.*)

No.	Pl.	Obs. Distance East.	Corrections			Corrected Mean.	Position Angle.	
			Refrac.	Aberr.	Scale.		E. Observed.	Mean. Corr'd.
62	18	.1779	534	—71	119	108.2364	225 55 46″	136 12 35
(*cont.*)	19	.1592	448	—71	119	.2175	56 35	13 24
	20	.1584	651	—72	125	.2272	55 50	14 1
	21	.1864	559	—72	116	.2536	58 10	16 26
	22	.1734	618	—72	120	.2279	56 50	14 54
	23	.1962	352	—52	118	.2315	53 30	14 1
	24	.1898	369	—52	119	.2252	54 40	13 19
	25	.1912	376	—55	118	.2192	55 15	14 26
	26	.1848	396	—55	116	.2215	54 12	13 2
	27	.1777	372	—57	116	.2106	55 22	14 47
						Means 108.2784		136 12 6
63	17	.6284	311	—54	144	83.6674	200 11 24	110 30 31
	23	.5974	264	—41	140	.6181	12 34	33 3
(18)	25	.5738	300	—43	140	.6142	14 24	33 36
	27	.5988	282	—44	136	.6306	14 40	33 52
						Means 83.6326		110 32 46

Table VI.—Mean Results.

No.	Mag.	Epoch 1870+	Distance.	Position Angle.	a'—a	d'—d	Bonn-Durch.
1		2.249	3137.45	259 14 52	−5654.45	− 620.81	
2	7.9	1.957	4009.14	311 39 38	−5631.66	+2630.50	57·130
3	9.2	3.226	3580.72	239 24 52	−5603.15	−1857.06	56·111
4	7.8	2.641	3079.63	254 11 9	−5425.43	− 871.95	56·112
5		3.117	3106.22	293 30 26	−5297.73	+1208.19	
6		1.982	2951.29	285 55 41	−5261.16	+ 779.49	
7	9.4	2.883	2870.27	260 34 51	−5199.01	− 499.71	56·113
8	9.4	2.896	2908.92	256 1 45	−5174.05	− 732.02	56·114
9		1.982	2849.56	283 49 34	−5124.60	+ 652.08	
10	9.4	2.685	3513.62	231 32 24	−4987.89	−2213.24	56·117
11		2.391	3254.92	235 7 52	−4853.07	−1887.17	
12	9.5	1.957	3753.82	317 18 2	−4790.17	+2733.87	57·134
13		2.849	2541.89	268 51 53	−4681.03	− 74.58	
14	9.1	2.494	3706.90	222 43 45	−4542.16	−2746.17	56·119
15		1.982	2602.60	291 56 29	−4481.00	+ 950.43	
16		2.249	2613.97	302 2 36	−4125.84	+1368.23	
17	9.3	2.915	2049.47	260 51 12	−3719.44	− 341.12	56·121
18		1.981	1974.64	249 18 2	−3586.11	− 710.70	
19	8.0	2.599	1965.25	240 30 17	−3129.38	− 978.50	56·123
20		1.981	1827.09	247 51 50	−3102.66	− 699 15	
21	9.0	2.763	2821.18	325 19 9	−3010.58	+2310.09	57·137
22		1.990	1870.94	300 26 44	−2993.58	+ 938.20	
23	8.5	2.676	1694.83	295 43 23	−2829 30	+ 726.78	57·138
24		3 069	1554.90	224 49 14	−2003.20	−1107.39	
25	9.5	2.984	1179.49	295 13 37	−1973.71	+ 498.41	57·140
26	8.4	2.599	2108.94	210 50 10	−1965.43	−1815.14	56·126
27		1.982	2820.40	340 41 14	−1754.05	+2658.36	
28	9 4	1 957	1110.05	308 20 52	−1612.64	+ 685.85	57·143
29	9.3	2.590	2476.24	342 46 5	−1376.32	+2363.03	57·144
30	8.9	1.957	837.56	320 51 22	− 979.13	+ 648.52	57·145
31	8.5	2.599	1142.08	203 40 30	− 838.56	−1046.74	56·128
32	9.0	2.739	1197.14	338 7 30	− 828.88	+1110.19	57·146
33	9.3	2.667	306.82	235 31 33	− 465.51	− 173.91	56·129
34	9.4	1.957	2356.89	354 54 41	− 392.17	+2347.44	57·148
35		1.957	1375.97	353 43 19	− 280.17	+1367.64	
36	8.8	2.737	2614 16	357 58 54	− 173.07	−2612.51	57·149
37	3.8	2.000					η Cassiopeia
38		2.006	1280.49	178 4 53	+ 78.25	−1279.78	
39	8.5	3.168	625.21	6 50 53	+ 138.02	+ 620.73	57·151
40	9.1	2.791	1323.86	3 19 40	+ 143.05	+1321.61	57·152

TABLE VI.—MEAN RESULTS. (*Concluded.*)

No.	Mag.	Epoch 1870+	Distance.	Position Angle.	$\alpha'-\alpha$	$\delta'-\delta$	Bonn-Durch.
41	9.0	2.599	2142.57	2 52 29	+ 201.26	+ 2139.83	57·153
42		1.982	3294.12	1 55 35	+ 209.24	+ 3292.20	
43	8.7	2.611	1837.01	174 31 43	+ 318.43	−1828.76	56·130
44	7.3	2.768	2742.70	175 20 53	+ 401.71	−2733.85	56·131
45	9.4	3.016	254.46	118 30 18	+ 411.70	− 121.63	57·155
46		2.862	1661.56	168 2 8	+ 627.13	−1625.91	
47	9.3	2.645	940.03	149 22 28	+ 877.17	− 809.76	56·133
48	9.0	2.908	2266.63	165 59 8	+ 995.15	−2200.28	56·134
49	8.5	2.942	3426.88	8 56 50	+1007.84	+3384.08	57·156
50	9.0	2.845	2007.92	163 53 35	+1011.95	−1930.24	56·135
51		1.957	2218.90	16 40 29	+1192.18	+2124.04	
52	8.7	2.728	2844.46	164 18 21	−1389.46	−2740.59	56·136
53	9.4	2.808	1777.49	151 50 45	+1527.63	−1569.74	56·137
54	9.5	3.215	2583.68	18 22 45	+1529.45	+2449.36	57·157
55	7.9	2.893	3403.36	15 23 37	+1706.97	+3278.13	57·158
56	8.8	3.075	3439.88	15 24 39	−1727.63	−3312.96	57·159
57		2.722	2025.67	150 28 48	+1815.35	−1766.39	
58	9.0	2.895	1346.77	119 24 46	+2151.24	− 666.53	56·138
59	9.5	2.739	2340.41	30 39 32	+2233.05	+2007.84	
60	8.9	2.879	1812.18	113 34 32	+3044.09	− 735.08	
61	8.5	3.194	2006.32	111 32 48	+3419.83	− 749.83	
62	7.4	2.599	3033.14	136 12 6	−3806.22	−2205.49	56·143
63		3.731	2342.75	110 32 46	+4017.55	− 840.14	

TABLE VII.—CATALOGUE OF THE STARS ABOUT η CASSIOPEIÆ.

No.	No. of Plates.	Right Ascension 1872.	Precession.	Sec. Var.	Declination 1872.	Precession.	Sec. Var.
		h m s	s	s	° ′ ″	″	″
1	4	0 35 5.145	—3.38570	—.05840	56 57 49.69	—19.8200	—.0839
2	1	0 35 6.664	—3.39701	—.06066	57 52 1.00	—19.8197	—.0841
3	4	0 35 8.565	+3.38212	—.05756	56 37 13.44	—19.8193	—.0839
4	25	0 35 20.413	—3.38710	—.05825	56 53 38.55	—19.8166	—.0844
5	12	0 35 28.926	+3.39544	—.05973	57 28 18.69	—19.8147	—.0849
6	2	0 35 31.364	—3.39433	—.05947	57 21 9.99	—19.8141	—.0849
7	13	0 35 35.507	—3.39058	—.05859	56 59 50.79	—19.8132	—.0850
8	10	0 35 37.171	—3.39005	—.05845	56 55 58.48	—19.8129	—.0851
9	2	0 35 40.468	—3.39525	—.05940	57 19 2.58	—19.8121	—.0853
10	11	0 35 49.582	—3.38692	—.05750	56 31 17.26	—19.8100	—.0854
11	5	0 35 58.570	—3.38931	—.05777	56 36 43.33	—19.8080	—.0858
12	1	0 36 2.763	+3.40596	—.06160	57 53 44.37	—19.8070	—.0863
13	7	0 36 10.039	—3.39717	—.05907	57 6 55.92	—19.8054	—.0863
14	6	0 36 19.297	—3.38945	—.05727	56 22 24.33	—19.8032	—.0865
15	2	0 36 23.375	+3.40274	—.05983	57 24 0.93	—19.8023	—.0869
16	4	0 36 47.052	—3.40778	—.06024	57 30 58.73	—19.7968	—.0879
17	17	0 37 14.145	—3.40573	—.05914	57 2 29.38	—19.7904	—.0889
18	2	0 37 36.367	—3.40770	—.05901	56 56 19.80	—19.7852	—.0898
19	27	0 37 53.483	—3.40927	—.05891	56 51 52.00	—19.7811	—.0904
20	2	0 37 55.264	+3.41053	—.05910	56 56 31.35	—19.7807	—.0905
21	20	0 38 1.403	—3.42250	—.06127	57 46 40.59	—19.7792	—.0909
22	3	0 38 2.536	—3.41757	—.06027	57 23 48.72	—19.7789	—.0909
23	26	0 38 13.488	—3.41843	—.06017	57 20 17.28	—19.7762	—.0913
24	14	0 39 8.561	—3.41982	—.05912	56 49 43.11	—19.7628	—.0934
25	5	0 39 10.527	—3.42610	—.06028	57 16 28.91	—19.7623	—.0934
26	27	0 39 11.079	—3.41759	—.05868	56 37 55.36	—19.7621	—.0933
27	2	0 39 25.171	—3.43661	—.06193	57 52 28.86	—19.7586	—.0943
28	1	0 39 34.599	—3.43040	—.06052	57 19 36.35	—19.7563	—.0945
29	11	0 39 50.353	+3.43929	—.06184	57 47 33.53	—19.7523	—.0953
30	1	0 40 16.833	+3.43656	—.06072	57 18 59.02	—19.7456	—.0961
31	27	0 40 26.204	—3.43142	—.05954	56 50 43.76	—19.7432	—.0963
32	4	0 40 26.849	—3.43985	—.06108	57 26 40.69	—19.7431	—.0965
33	24	0 40 51.074	—3.43843	—.06028	57 5 16.59	—19.7368	—.0975
34	1	0 40 55.963	—3.44919	—.06214	57 47 17.94	—19.7356	—.0979
35	1	0 41 3.430	—3.44638	—.06141	57 30 58.14	—19.7336	—.0980
36	23	0 41 10.570	—3.45247	—.06235	57 51 43.01	—19.7318	—.0984
37		**0 41 22.108**	**—3.44373**	**—.06048**	**57 8 10.50**	**—19.7287**	**—.0987**
38	1	0 41 27.325	—3.43947	—.05960	56 46 50 72	—19.7274	—.0988
39	5	0 41 31.309	—3.44756	—.06096	57 18 31.23	—19.7263	—.0991
40	24	0 41 31.645	—3.45041	—.06148	57 30 12.11	—19.7263	—.0992

TABLE VII.—CATALOGUE OF THE STARS. *(Concluded).*

No.	No. of Plates.	Right Ascension 1872.	Precession.	Sec. Var.	Declination 1872.	Precession.	Sec. Var.
		h m s	s	s	° ′ ″	″	″
41	27	0 41 35.525	+3.45434	+.06214	57 43 50.33	+19.7252	—.0994
42	2	0 41 36.057	+3.45920	+.06305	58 3 2.70	+19.7251	—.0996
43	22	0 41 43.337	+3.43967	+.05935	56 37 41.74	+19.7231	—.0994
44	22	0 41 48.889	+3.43698	+.05871	56 22 36.65	+19.7218	—.0995
45	12	0 41 49.555	+3.44735	+.06056	57 6 8.87	+19.7217	—.0997
46	11	0 42 3.917	+3.44344	+.05952	56 41 4.59	+19.7177	—.1001
47	24	0 42 20.586	—3.44910	+.06018	56 54 40.74	+19.7132	—.1008
48	7	0 42 28.451	+3.44476	+.05923	56 31 30.22	+19.7112	—.1011
49	16	0 42 29.297	+3.46775	+.06331	58 4 34.58	+19.7109	—.1017
50	10	0 42 29.571	+3.44598	+.05942	56 36 0.26	+19.7109	—.1011
51	1	0 42 41.587	+3.46428	+.06243	57 43 34.54	+19.7076	—.1020
52	24	0 42 54.739	+3.44641	+.05896	56 22 29.91	+19.7040	—.1021
53	13	0 43 3.950	+3.45240	+.05982	56 42 0.76	+19.7016	—.1029
54	11	0 43 4.071	+3.46905	+.06276	57 48 59.86	+19.7015	—.1034
55	21	0 43 15.906	+3.47442	+.06348	58 2 48.63	+19.6983	—.1036
56	11	0 43 17.283	+3.47479	+.06351	58 3 23.46	+19.6979	—.1037
57	9	0 43 23.131	+3.45439	+.05979	56 38 44.11	+19.6962	—.1033
58	13	0 43 45.524	+3.46216	+.06070	56 57 3.97	+19.6901	—.1044
59	4	0 43 50.978	+3.47425	+.06271	57 41 38.34	+19.6886	—.1048
60	18	0 44 45.047	+3.47058	+.06089	56 55 55.42	+19.6735	—.1068
61	16	0 45 10.097	+3.47420	+.06099	56 55 40.67	+19.6664	—.1077
62	27	0 45 35.856	+3.47178	—.06009	56 31 25.01	+19.6589	—.1085
63	4	0 45 49.945	+3.47964	+.06109	56 54 10.36	+19.6546	—.1093