UNITED STATES NAVAL OBSERVATORY.

In the first series of readings the position of the circles was such that when the telescope pointed to the zenith, the divisions of circle A, which were under microscopes V-VIII, were:

Mie. V, 135°; VI, 225°; VII, 315°; VIII, 45°.

The divisions of circle B, under microscopes I-IV, were:

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Mic. I, 315°; II, 45°; III, 135°; IV, 225°.

When the telescope pointed at senith distance s, the above readings of microscopes V-VIII would be increased, and those of I-IV diminished by s.

The operation was begun on divisions 0° , 90° , 180° , 270° . The division 0° of circle B was brought under microscope I, and the eight microscopes were read, one observer reading each circle. The telescope was then turned 90° , and the microscopes were again read. The telescope was again turned 90° , and the operation of turning and reading continued until the microscopes had been read three times in each of the four positions of the telescope. The mean of the three readings was taken as that corresponding to each position.

The telescope was then set 15° backward from its first position, and the same operation was performed on divisions 75°, 165°, &c., of circle A, and 15°, 105°, &c., of circle B. The operation was repeated through every 15° of the quadrant. The first series was now complete.

In the second series circle A was loosened and turned 180° on its axis, so that when the telescope pointed to the zenith, the division 315° was under microscope V. A series of readings exactly like the first was then made on the two circles.

Circle B was then turned on its axis 180°, and a third series of readings were made.

Finally, circle Δ was returned to its original position, and a fourth series of readings were made.

The mean of the three readings for each position of the instrument is given in the following table:

Zenith distance of tolescope.	Division under microscope L	Division under microscope V.	. Readings of microscopes.							
			I.	п.	пі.	IV.	v .	VI.	VII.	VIII
	0	`0	"	"		"	"	"	"	"
-45	9.0	180	27.90	25.63	4.97	0.67	4.97	7.07	2.87	2,90
135	100	270	27.40	25, 60	4.77	29.13	5.33	6. 27	0.67	3. 37
225	90	0	93.43	23.70	3.73	27.23	5.43	4.63	2.17	5.03
315		90	24. 37	21.90	3, 67	28,50	4.50	6.73	4. 67	5.43
30	285	165	98.57	23.67	3.40	28.93	6.93	8.60	4.77	4 30
190	195	255	26.43	25, 10	3.83	28, 27	6.20	8.00	1.83	4.3
210	105	345	23. 47	23.70	4.40	27,00	5, 60	4.47	1.63	4.55
300	15	75	22, 27	90.13	1.80	87, 17	6.10	8.60	5.57	7.13
15	300	150	96.87	24.77	4.57	29.70	4.83	6.83	3.67	3.43
105	210	. 240	27. 33	\$5.63	4.77	29, 40	5. 97	7.43	1.67	3.10
195	120	330	94.03	23, 63	3, 30	27.07	6.00	5.50	1.43	3.00
. 285	30	60	23, 17	21.50	8.47	\$7.03	5.17	6.77	4,63	5.63
0	315	135	96.57	23, 90	4.53	29, 27	4.67	7.30	3.93	4.13
90	225	225	27.73	26.90	5.33	0,40	4.67	6.67	1.50	2.37
180	135	315	25. 47	24.60	4.70	27.77	4.93	5,07	0,63	3. 27
. \$70	45	45	93. 30	22. 35	8.50	27.75	5.00	6.20	5,90	5.18
345	: 330	- 190	25.03	22, 43	3. 30	. 98, 13	5,23	8, 13	4.17	5, 60
75	840	210	27.13	* 26. 07	4.70	0.93	5. 17	7.00	2.87	2.93
165	150	300	25. 37	94. 17	4.03	27.47	5. 23	6.43	1.03	3.73
255	60	30	***. 85	23, 60	8.60	\$7.35	5.45	5.35	8.96	4.80
330	345	105	24.77	21,97	3, 10	28.57	5.90	7.70	5,03	5, 90
60	255	195	87.43	25.87	4.60	0.03	5. 27	7.77	3, 30	3.77
150	165	285	, 96. 30	25.57	4.93	28, 67	5.40	6, 30	0.93	3.50
840	- 75	15	22,70	99.37	3,13	87.57	5.33	5.77	2.83	5.6

SERIES I.