Second series. -- Position 0°.

Third series .- Position 180°

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Direct.	Tevelse.
d.	d.
+0.81	-1.94
+0.32	-0.94
0.24	-1.42
. 0.00	d.
Mean,	D-B. +1.42.
	d.
-0.18	-0.95
+0.36	-1.65
-0.39	
	d.
Mean.	D-E. +1.09

The concluded correction for difference of collars, when in the position 0° or 180°, is one-fourth D-R. or 0".29, the eye-pivot being too large.

Two similar, but more accordant, series gave for the correction to position $90^{\circ}-270^{\circ}$ 0".09, so that the collars are not perfectly cylindrical.

COLLIMATOR B.

The determinations have been made only for the positions 0° and 180°. The results are

D-R	for	0°, +1.06
	for	1800, +0.55

Concluded correction, 0".17, the eye collar being too large, as in the other collimator.

The collars are decidedly conical, diminishing toward the ends of the telescope, so that entire dependance cannot be placed on the absolute horizontal point obtained from a single collimator. But, by interchanging the collimators, this error is completely eliminated from the zenith point.

(54) Periodic Inequalities of the Micrometer Screws.—In the case of the eight microscope micrometers the inequalities of the Micrometer Screws.—In the case of the eight microscope wires of each pair with different portions of the screw. The circle being clamped and properly set, one of the micrometer wires was brought to a distance from the edge of a division approximately equal to the thickness of the wire. The observer retained a quite accurate idea of the intervening space, though the idea could not be defined in language. The micrometer was then read. The other wire was then brought into the same position, and the micrometer was again read. The operation was twice repeated, making three measures in all. The circle was then moved forward 5" by the tangent screw, and a similar series of measures again taken. The operation was continued through the two revolutions of the screw most used.

Repeated trials showed that the wires could be set more accurately in position by this method than by making them coincide with the circle division, the probable error of a single setting being about 0".10, scarcely greater than that in putting the division midway between the wires.

The results of a determination made in November, 1865, were:

For microscopes I, II, III, inequality insensible ;

IV. Ineq. = $-0^{\prime\prime}.53 \cos w + 0^{\prime\prime}.57 \sin w + 0^{\prime\prime}.13 \cos 2w - 0^{\prime\prime}.11 \sin 2w$;

٧.	-0 .03 cos #+ 0 .05 sup # ;
VI.	+0 .24 cos =+0 .28 sin = ;
VII.	-0 .06 cos w+0 .06 sin w;
VIII	10 06 cos w 10 .27 sin w:

u being the angle of the reading of the head.

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