

## THE LATITUDE OF THE MANILA OBSERVATORY

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In order to get an accurate determination of the latitude of the Observatory, the observations herein described were made by the author during the month of January 1927.

1. **The Instrument.**—The instrument used was the Repsold Broken Transit, of the usual type. The length of the micrometer comb is 34'. There are two latitude levels, of graduated bore about 120 mm. Both levels were read, and the mean of the two readings taken. The transit (in the same position) is also used for the determination of time for the Philippines. It is interesting to note, too, that the radio apparatus used in the determination of the longitude of the Observatory during the World Longitude Tests is situated only a few steps from the transit pier. The results of the Longitude Tests will be published by the writer in a later paper.

2. **Method.**—The latitude determination was made by the usual Horrebow-Talcott method. The star pairs (Table I) were all taken from Boss' Preliminary General Catalogue, since the number of available pairs obtainable from the American Ephemeris was far too small to give a good result in a short time. In the selection of pairs, the customary precautions were taken, i. e. (a) the difference in the zenith distance of the two stars of a pair should not exceed half the diameter of the field of view; (b) the difference in right ascensions should not exceed 15 to 20 minutes, nor be less than 2 or 3 minutes; (c) the zenith distances should not exceed 35 degrees. It will be found upon examination that few of the pairs even come close to the above limits. Following the most approved practice, no "triplets" were observed; each pair stands separate.

3. **The Stars.**—Two sets of systematic corrections to Boss' Catalogue have been published lately: (a) that of the Naval Observatory, Washington; (b) that of Raymond (cf. *Astronomical Journal*, March 22, 1926, vol. 36, Nos. 17-18). The latter set has been used, since it appears to be based upon many more catalogues than the former. It must be remembered, however, that these corrections are only *systematic*, and must leave practically untouched the errors in declination of the individual stars, such as observational errors, etc.

The reductions to apparent place for Groups II and IV were made by the usual method; the reductions, however, for Groups I and III were made by means of the Cape Tables. The epoch used for calculating the Independent Star Numbers was the middle of the observing period for the night. There is some slight evidence that this may be the reason why for January 9th and 10th (Group I), the signs of the residuals for the first half of the Group are negative, while for the second half of the Group they are positive (cf. also Jan. 13th and 22nd of Group III). The effect upon the final result is probably negligible, as the slight errors, if any, in the individual pairs are very likely evened out when the whole night's work is taken into consideration.

The refraction corrections were taken from Campbell's *Practical Astronomy*, p. 179.

4. **Instrumental Constants.**—(a) *Levels.*—The level constants used were: Level A (near level), 1.452"; Level B (far level), 1.401". These values are partially from determinations by the writer, partially from those by the Rev. J. Comellas, S. J., and are