

Mr. Chesnut exhibited utensils used by the Indian women in the preparation of acorn meal.

WILLIAM H. KRUG, *Secretary*.

ASTRONOMICAL NOTES.

CLOCK RATES AND BAROMETRIC PRESSURE.

ENSIGN EVERETT HAYDEN, U. S. Navy, publishes in the Publications of the Astronomical Society of the Pacific, No. 68, an interesting investigation of the effect of variations in barometric pressure upon the rates of clocks and chronometers. This study was made at the Mare Island Observatory, where chronometers are rated for the U. S. Navy, and where the time observations are regularly made, which are supplied by the Western Union Telegraph Company to that part of the country west of Ogden, Utah. The paper gives in detail the results for the Mean Time Clock of the observatory and for three Negus chronometers. The method is empirical, depending upon the rates actually observed under varying pressure and temperature, and the numerical results are obtained graphically. From tests of the Mean Time Clock extending through two hundred days, it is believed that had the rate-curves been used without any time observations the errors of the noon signal would at no time have exceeded six-tenths of a second, and seldom have exceeded one-tenth of a second, and at the end of the period would have been correct within a few hundredths of a second. The barometric and temperature curves of the sidereal and mean time clocks are now used in the current work of the observatory, and the author is of the opinion that a first rate pendulum clock is a much better instrument than usually supposed, and actually comparable in uniformity with the axial rotation of the earth, if account is taken of these variations. The experiments on chronometers lead the author to believe that the use of a barometric curve in actual practice at sea is worthy of trial, and the navigator of one of our naval vessels now in the Pacific will report upon his experience with the three chronometers whose rates are discussed in the paper.

STELLAR PARALLAX BY PHOTOGRAPHY.

A CONTRIBUTION to this subject is made by

Östen Bergstrand of the observatory at Upsala. The author discusses the theory of the reduction of measures on the photographic plates and the instrumental errors of the Repsold apparatus employed. The parallax of $\Sigma 1516 A$ is found to be $0.''080 \pm 0.''011$ and of $A - Oe. 11677$, which has a proper motion of nearly $3''$, to be $0.''192 \pm 0.''013$. These determinations were made on account of the discrepancies in the results of other observers. The paper is in Swedish but an abstract in French is supplied.

JUPITER'S FIFTH SATELLITE.

PROFESSOR BARNARD has added to our knowledge of the period of this satellite the results of his observations in the last two oppositions of Jupiter made with the 40-inch equatorial of the Yerkes Observatory. Combining these with the earlier observations at the Lick Observatory, the period is 11 h. 57 min. 22.647 sec. and is not in error exceeding 0.01 sec. The discordancies in the separate determinations are very small and the measures show the great accuracy attainable in micrometric observations with these large refractors upon difficult objects.

WINSLOW UPTON.

PROVIDENCE, R. I., Oct. 14, 1899.

CURRENT NOTES ON METEOROLOGY.

KITE AND BALLOON METEOROLOGY IN FRANCE.

Two communications have been made to the French Academy of Sciences during the past summer by Teisserenc de Bort on the kite and balloon work carried on at the Observatory of Trappes. Altitudes of 3,940, 3,590 and 3,300 meters were reached on June 14th, June 15th, and July 3d, respectively. The results obtained by means of the kite meteorographs during more than 100 ascents show that in anti-cyclones the rate of decrease of temperature aloft becomes slower at a distance of a few hundred meters above the ground, and inversions of temperature are often observed. In cyclonic areas the decrease of temperature is more rapid. In fine weather, with high pressure, the wind velocity generally decreases with increasing distance from the ground up to an altitude between 1,500 and 3,000 meters. On the other hand, on cloudy days, with low pressure, the velocity