

Bosch seismograph installed at the Weather Bureau Office at Washington, D. C., nor on the Milne seismograph at the Johns Hopkins University, Baltimore. Cheltenham is situated about sixteen miles southeast of Washington. A tabulation of all the earthquake effects thus far recorded on the Coast and Geodetic Survey magnetographs has been undertaken.

The following information courteously supplied by the director of the Harvard Observatory, Professor E. C. Pickering, will be of interest:

"There are, as you suppose, no seismometric instruments at this Observatory. The best observation which we have of the earthquake of March 21st is that of Mr. H. R. Colson, who was on duty at the time. He was indoors, and noticed the vibration which he describes as having three or more distinct shocks, and which he mistook at first for a person going in a labored manner up a flight of steps on the top of the building. He took the time from his watch with what he estimates as an error of  $\pm 5$  seconds. He then compared his watch with the standard clock, getting as the corrected Eastern Time, 1<sup>h</sup> 04<sup>m</sup> 18<sup>s</sup> A. M. I myself was awakened by the shock, and looked at my watch which read 1<sup>h</sup> 05<sup>m</sup>."—ED.]

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#### MAGNETIC STORM OF OCTOBER 31—NOVEMBER 1, 1903, IN JAPAN.

The magnetic storm which occurred October 31–November 1, was of very great energy. In this country the magnetic "Unruhe" was first noticeable on the magnetograms at six o'clock morning on the 31st October. The disturbances became very great from 3 P. M. (31st), to 4 A.M. on 1st November, and then gradually died away.

The maximum range of the disturbance was 38' in the declination and 215γ in the vertical component. The trace of the horizontal magnet passed beyond the photographic record, and hence, the range can not be obtained.

Dr. Oishi, my colleague, estimated the maximum range of the disturbance in the horizontal component by comparing the records at the other stations and found 515γ.

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