

constitute " the largest and most complete investigation of the kind that has yet been performed on the American Continent." M. B. S.

PHOTOGRAPHIC SEARCH FOR A MINOR PLANET.—Mr. Isaac Roberts (*M. N. R. A. S.* **47**, 265,) communicates an account of the successful photography of the minor planet Sappho. Scarcely any observations of this planet had been published since 1872, and hence Mr. Bryant, who is engaged in determining its orbit, appealed to Mr. Roberts to find the planet if possible by photography. The planet is, however, not only of the eleventh magnitude in brightness, but its motion in an hour is equal to about 4.2 times its photographic diameter, and thus the trail left not exceeding in density that of a thirteenth magnitude star. With an exposure of one hour on December 30th, the trail of the planet was distinctly recognized and the error of the ephemeris deduced from the photographs is in close agreement with several meridian observations made about the same time at Duerecht.

This is probably the first instance in which photography has been successfully applied for this purpose. It is a distinct demonstration that asteroids of the eleventh magnitude leave strong trails on the photographic plates, and indicates that under favorable conditions those down to the thirteenth or fourteenth magnitudes may be photographed. Another inference suggested by Mr. Roberts is that one astronomer could, in about three years' time, photographically discover all the asteroids existing down to the fourteenth magnitude. M. B. S.

SOLAR STATISTICS AND TERRESTRIAL MAGNETISM.—R. Wolf, (*Astron. Nach.*, **116**, 259), of Zürich, in tabulating side by side the relative number of sun spots,  $r$ , and the variation of the magnetic declination at Milan,  $v$ , for each month of the year 1886, shows that both were decidedly less than in the previous year. He finds the mean value for  $r$  25.7, for  $v$ , 6.75, and inserting this value for  $r$  in the formula derived by him some years ago for Milan:

$$v = 5.62 + 0.045 \cdot r$$

the resulting value for  $v$  is 6.79. This value differing but  $\frac{7}{100}$  from the observed value again confirms the remarkable relation between the two phenomena—a relation which the Zürich astronomer was, we believe, the first to announce. M. B. S.

NEW DOUBLE STARS.—Prof. G. W. Hough (*Astron. Nach.*, **116**, 274), publishes a catalogue of 209 new double stars discovered by him with the eighteen and one-half inch refractor of the Dearborn Observatory at Chicago. Only thirty-nine of these have a distance of more than 5'', and these with few exceptions are excessively unequal in magnitude; seventy-seven have a distance of 2'' to 5''; forty-three, 1'' to 2''; twenty-five, 0.5'' to 1'', and twenty-five, 0.5'' and less. These double stars are for the most part difficult objects even with the Chicago telescope, and it is certainly creditable to have discovered so many new objects of interest in a field already well explored. M. B. S.

A NEW UNIT FOR ABSOLUTE TIME.—Mr. Lippman (*Comptes Rendus*, **104**, 1,070) proposes a unit of absolutely invariable time, which, as independent of every astronomical hypothesis, would serve as a check on the