This catalogue has recently been published, so a few words about the method employed in making the observations may be opportune. Before setting out on this journey Mr. Stanley Williams made several hundreds of observations to make himself familiar with this class of work, so that his estimations have considerable weight. He adopted the usual method of making variable star observations by using an opera-glass, and bringing each star and its comparison stars into the centre of the field consecutively. The star undergoing comparison was usually compared with two others of known magnitude, one of which was brighter and the other dimmer than the star to be observed. Instead, however, of estimating the difference of brightness between the comparison star and the star under examination in steps or grades, the magnitude of a step being usually different for nearly every observer, he employed another method. This was to mentally divide the interval between the two comparison stars into as many parts as there were tenths of a magnitude between them, the adopted magnitudes of the comparison stars being, of course, known, and then estimate how many of these tenths the star under observation was dimmer and brighter than the comparison stars.

A step in this case thus corresponded to a tenth of a magnitude on the scale of the "Harvard Photometry." A comparison of the resulting magnitudes of some of the stars observed, which have also appeared in the "Southern Meridian Photometry," shows that "the present catalogue, on the whole, accords exactly with the 'Harvard Photometry,' though the number of stars is too small for absolute certainty." A similar comparison with the "Uranometria Argentina" shows more considerable differences, excepting between 2.8 and 3.4 magnitudes; but it must be remembered that the scale of the "Uranometria Argentina" differs largely from that of the "Harvard Photometry."

In the course of this work one variable, V Puppis, was discovered, and thirteen other stars were found to be probably variable.

THE VARIABLES S CASSIOPEIÆ AND S URSÆ MAJORIS.—Some time ago, in this column (December 2, 1897, p. 105), we had the pleasure of saying a few words about the variable stars S Cephei and T Ursæ Majoris, which Mr. Peek, of the Rousdon Observatory, had so energetically observed and recorded during the years 1887 to 1896. We are now able to refer our readers to another small, valuable pamphlet (No. 3) containing the observations, extending over the same years, of the two variable stars S Cassiopeiæ and S Ursæ Majoris. Each of the observations here recorded is the mean of five visual comparisons with stars whose magnitudes have been previously determined either by Mr. Peek himself or some other observer. Further, the comparisons are all made with stars in the same field of view as the variable under observation, the instrument employed being a 6.4-inch equatorial refractor by Merz. The observations are recorded in a uniform way throughout, in which the date of observation, the magnitude, and remarks as to colour and magnifying power used are given. As in the previous publication, Mr. Peek adds a graphical study of the light changes of these stars throughout each year, and a perusal of these curves is of great interest. We hope Mr. Peek has some more observations of other variables which he will publish in like manner, as it is just such observations that will throw light on the changes which these stars undergo.

OCCULTATIONS PHOTOGRAPHICALLY OBSERVED.—Prof. E. C. Pickering records, in a Circular (No. 26) of the *Harvard College Observatory*, the result of the occultation of 26 Arietis as observed photographically at that observatory. The instrument used was an improved form of that constructed for photographing the eclipses of Jupiter's satellites, and previously described. The phenomenon of this occultation was satisfactorily photographed by Mr. Edward S. King on February 25 of this year. The apparatus was connected with a standard clock, and the photographic plate was moved about 0.03 cm. every time the circuit was closed or opened, two images alternately faint and bright being obtained every second, the duration of exposures being 0.06 and 0.94 seconds. An examination of the series of images showed that the time of occultation could be fixed to within one-tenth of a second. Prof. Pickering adds that by using shorter exposures the uncertainty of the time of disappearance can be still further greatly reduced, especially in the case of brighter stars. 26 Arietis is a star of magnitude 6.1; since satisfactory images were produced in 0.06 seconds, stars

probably down to the ninth magnitude can be thus photographically observed. The stellar images were further examined to inquire whether any lunar atmosphere could be detected by noting any change in the intensity of these images; but none was discovered. *A propos* of occultations, it is interesting to draw attention to the fact that Prof. G. P. Bond, more than forty years ago, took a number of photographs of the moon and a Virginis shortly before the occultation of the latter, to determine photographically the position of the moon.

COMET PERRINE.—A telegram from Kiel, dated March 21, informs us that the position of Perrine's Comet at 19h. 7m. Mount Hamilton mean time was R.A. 21h. 16m., and Declination 26° 44' north, the movement in these two coordinates being 14 and 37 seconds respectively.

A MAGNETIC STORM.

SINCE August 1894 no magnetic storm has occurred in England at all equal to one experienced during the last few days. Its first indication at Kew Observatory occurred about 8.55 p.m. on the 14th, when a noticeable increase took place in the horizontal force. This element then oscillated about its normal value to a moderate extent until 4 p.m. on the 15th, when there commenced a large decrease superposed on large oscillatory movements. The minimum was reached about 10.48 p.m. on the 15th. During the subsequent rise, which was very rapid at first, there were some further large oscillations, and the element remained somewhat disturbed until 5 p.m. on the 16th. The vertical force was only slightly disturbed until 2 p.m. on the 15th. After increasing to a maximum about 5 p.m. it decreased rapidly with large oscillations, attaining a minimum about 10.48 p.m. It then reapproached its normal value, the oscillations being large at first, but becoming small early in the morning of the 16th.

The declination disturbance commenced at the same time as that of the horizontal force, but was small until midnight on the 14th. After a general easterly movement, lasting for some hours, the needle reversed its direction, attaining its extreme westerly position about 2.48 p.m. on the 15th. It then recommenced a very conspicuous movement to the east, with various large oscillations. After attaining an extreme easterly position about 11.18 p.m. on the 15th, the needle moved once more to the west, the motion remaining oscillatory. The disturbance did not disappear until about 5 p.m. on the 16th.

The extreme amplitude of the disturbance was: horizontal force, .0050 C.G.S. units; vertical force, .0057 C.G.S. units; declination, 1° 26'. In eight minutes, from 10.40 to 10.48 p.m. on the 15th, the horizontal and vertical components exhibited falls of .002 and .003 C.G.S. units respectively. The most rapid change of declination occurred some thirty minutes later. Speaking generally, the most salient features were the large falls in both the horizontal and vertical components, and the movement of the declination needle to nearly 1° east of its normal position. The storm was presumably associated with the brilliant aurora visible on the night of the 15th in the northern half of the kingdom and in Denmark (*Daily Weather Report*, March 16).

CHARLES CHREE.

THE AUSTRALASIAN ASSOCIATION.

THE meeting of the Australasian Association for the Advancement of Science, held at Sydney in the beginning of January, appears to have been a very successful one. From the reports which came to hand a few days ago it appears that the meeting was attended by the foremost men of science in the various Australasian Colonies, and that a large number of papers were read in the different sections. The Association now numbers more than six hundred members.

The meeting was opened on Friday, January 6, and on the evening of that day Prof. Liversidge delivered his address as president of the Association. Saturday, January 7, and succeeding days in the following week were largely taken up with the sectional meetings. Papers were read in connection with astronomy, mathematics and physics; chemistry, geology and mineralogy, biology, geography, ethnology and anthropology, economic science and agriculture, engineering and architecture,