from the varying effects of shadows which make the study of the moon itself possible only to specialists. With the advance which has taken place in the interpretation of topographic forms in the last twenty years, it seems not too much to hope, now that this model has been made accessible to students of science, that its study will bring to light new facts regarding the nature and history of our satellite..

Oliver C. Farrington.

Field Columbian Museum, Chicago.

Lehmann and Hansen on 'The Telepathic Problem.'

To the Editor of Science: I can assure Professor James that I do not knowingly leave unread anything that he or Professor Sidgwick writes. I carefully considered the two papers to which he refers, at the time of their appearance, and have recently turned to them again. I am afraid, however, that I cannot make the admission that Professor James expects. Even if I granted all the contentions of criticism and report I should still see no reason to change the wording of my reference to Lehmann and Hansen. But there is a great deal that I cannot grant. While, like Stevenson's Silver, 'I wouldn't set no limits to what a virtuous character might consider argument,' I must confess that, in the present instance, the grounds for such consideration have not seldom escaped me.

Professor James rules that the *Phil. Studien* article is 'exploded.' I have tried to take up the position of an impartial onlooker; and, from that position, I have seen Professor James and Professor Sidgwick and Herr Parish handling the fuse, but I have not yet heard the detonation.

E. B. Titchener.

Astronomical Notes.

The November Meteors.

Reports of meteor observations made this year between the 11th and 16th have been published from England, France and the United States. These are sufficient to show the characteristics of the display and to furnish hints as to the methods which should be followed in future years. The greatest number of meteors was noted on the morning of the 15th (civil reckoning), when the rate reached two each minute at some stations in the United States. A single observer could count forty or more per hour. It is probable that the maximum had already passed, as more meteors were noted on the preceding than on the following night at the few stations where the skies were clear on those nights. On the 14th a single observer at Lyons, France, noted 134 between 1:04 a. m. and 4:05 a. m. On account of the cloudy weather at Paris M. Janssen made a balloon ascension and observed above the clouds. We are told that this plan of securing clear skies will be used more extensively next year. The number observed this year is fully ten times as great as those observed in 1897 and is about the same as that noted at Grenwich in 1865, the year preceding the great shower of 1866. This augurs well for the year 1899.

Observers report several interesting facts: (1) Many meteors with the characteristics of the Leonids did not proceed from the radiant area within the 'Sickle of Leo.' The discrepancies in locating the radiant point are not to be wholly explained by the errors to which all eye estimates of meteor tracks are liable, but are in part real. (2) The radiant area has for its center a point which is farther south than that calculated from the observations of 1866, which was R A. 10 h. 0 min., Decl. + 22°.9. The records this year, as far as known, range between 9 h. 50 min. and 10 h. 20 min. in R. A. and + 18° to 22° in Decl. A preliminary determination from the photographed trails of four meteors made at Harvard Observatory gives 10 h. 6.8 min., Decl. + 22°16′. (3) There were very few brilliant meteors compared with the total number. At Providence fourteen only out of nearly five hundred were brighter than the first magnitude.

The practicability of the photographic method of studying meteors needed no demonstration, but its possibilities are greater than was supposed. An ordinary camera, such as those in use by amateurs, will photograph the brighter meteors. Thus one with an aperture of only one inch and focal length of nine inches, if carefully focussed, will give trails of meteors as bright as the 0 magnitude. The camera need

not be driven by clockwork if the time of the appearance of the brightest meteors in the region towards which the camera is directed is noted. For then the exact positions of the comparison stars in their curved trails while the plate is exposed is known. Amateur assistance in meteor photography is, therefore, valuable. Of still greater value is the photographic record by the larger instruments. Not only can the paths of the meteors be located with accuracy and the position of the radiant points determined, but special characteristics of the trails may be studied. Thus the Harvard Circular, No. 35, mentions that the light attained a maximum and then diminished as rapidly as it increased; that sudden changes due to explosions are well shown; that the trail is sometimes surrounded by a sheath of light, and that in one case the trail remained after the meteor had passed. That these characteristics, which have been noted visually heretofore, should now submit to a permanent photographic record shows that photography will have a large place in this branch of astronomical study.

CHASE'S COMET (J. 1898).

THE discovery of this comet on the plates exposed at New Haven, on the radiant region of the Leonids, is the most interesting episode of the meteor observations. The photographic brightness was estimated to be equal to a star of the 11th magnitude, but it was much fainter in a visual telescope. It was hoped that it might be connected with the meteor stream, but its orbit shows that it simply chanced to be in that direction when observed. The preliminary orbits thus far published are unusually discordant, perhaps due to the combination of the photographic and visual determinations of position.

STELLAR MOTIONS.

PROFESSOR W. W. CAMPBELL, of the Lick Observatory, in the publications of the Astronomical Society of the Pacific, announces the rapid movement towards us of two stars, η Cephei and ζ Herculis. From four photographs of their spectra he determines a relative velocity of 53.9 miles per second for the former and 43.7 for the latter. Allowing for the motion of the solar system, these figures are reduced to 46.0 miles per second and 33.5 miles per second respectively.

WINSLOW UPTON.

BROWN UNIVERSITY,
December 16, 1898.

CURRENT NOTES ON ANTHROPOLOGY.

THE AMERICAN HERO-MYTH.

Two studies have lately appeared on the widely diffused myth of the 'culture-hero' in America. The one is by the Count de Charencey, on the legend of Huitzilopochtli, printed in the *Proceedings* of the French Association for the Advancement of Science, 1897; the other is by Dr. Franz Boas, reprinted from the *Memoirs* of the American Folk-lore Society, Vol. VI., and treats of the Salish Raven Myth and others from the Northwestern tribes.

All these myths are strikingly alike in many details, and both these writers agree that 'it is inconceivable that they originated independently.' Hence Dr. Boas claims that the various raven and coyote tales have a common source; and with precisely the same and equally strong arguments M. de Charencey shows that the myths of the Mayas and Nahuas originated in eastern Asia.

To my thinking, not the similarities (for these we should expect from the constitution of the human mind), but the differences in such myths are what should command our chief attention.

THE PRIMITIVE SAVAGE.

'WAS primitive man a modern savage?' is the question asked by Dr. Talcott Williams in the Smithsonian Report, just issued, and answered by him in a constructive negative. To Dr. Williams, primitive man was a peaceful, happy creature, knowing not war or cannibalism, with a 'surprising primitive development,' which later on degenerated into civilization. This early man enjoyed 'a juster conception of the divine' than his descendants. His gods were peaceful, communication free, hospitality open. "The earth was still empty and happy and young."

If Dr. Williams intends this as a pleasant, humorous sketch, it will pass; if a serious inference from the ascertained facts of prehistoric