

Mittheilung von Prof. E. C. Pickering betr. Beobachtungen in Cambridge Mass. und Umgegend.

(Harvard College Observatory Circular No. 35).

Observations of the Meteoric Shower of November 13, 1897, were made at the Harvard College Observatory, and a description of the results will be found in the *Annals*, Vol. XLI, No. 5, and in Circular No. 31 (A. N. 3531). More extensive observations were made in 1898, and the results will be published later in the *Annals*. Several investigations were undertaken, and some of the preliminary results are given below. As proposed in Circular No. 31, stations have been selected all around the Earth in order that counts of the number of meteors visible might be made during the entire time that the Earth traversed the meteor stream. The density of different portions of the stream would thus be determined. Reports from the distant stations will not be received for some time. The night of November 13 was cloudy in Cambridge, but on November 14, 800 meteors, not including duplicates, were recorded at this Observatory by 30 persons. The maximum occurred at three o'clock in the morning, when 61 meteors east of the meridian were counted in half an hour. 227 trails of 80 different meteors, within 30° of the radiant point, were charted. Similar observations were made at Providence by Professor Upton of the Ladd Observatory, aided by a number of students. The vicinity of the radiant was watched continuously by at least ten observers, who recorded 400 meteors. This station is 40 miles south of Cambridge, and was selected as suitable for determining the parallax visually. Ninety-six photographs were taken at Cambridge with the Draper telescopes and

with eleven smaller instruments. Five photographic doublets were mounted equatorially and photographed the region within 30° of the radiant, during nearly the entire night. Two cameras were carried to Tufts College, two miles north of Cambridge, and twenty-five photographs were taken simultaneously at both stations for a photographic determination of the parallax. In all, 31 trails of eight different meteors were photographed, of which 3 appeared on one plate. Four meteors were photographed at both stations, and can be used for determining the parallax photographically. The changing distance of the meteors is obvious by inspection of these photographs. A preliminary determination of the radiant was made by prolonging the trails of 4 meteors. They nearly intersect in a point, the greatest deviation not exceeding 1 mm, or 10'. The position of the radiant reduced to 1900 is thus given as RA. = 10^h 6^m 8, Dec. = +22° 16', which is 9^m following, and 38' south of the place given by Denning. Seventeen plates were taken with prisms, but they failed to show the spectra of any meteors. It appears from the photographs that the light of the meteors attained a maximum and then diminished as rapidly as it increased. In some cases, sudden changes due to explosions are well shown. The trail is sometimes surrounded by a sheath of light, and in one case the trail remaining after the meteor had passed was photographed. These results show that meteoric showers may now be studied to advantage by photography.

Harvard College Observatory, 1898 Nov. 19.

Edward C. Pickering.

Beobachtungen auf der Sternwarte in Hongkong Nov. 14.

On the morning of the 14th November Mr. J. I. Plummer and myself kept an uninterrupted look out for shooting stars from 12^h 15^m till 5^h 15^m. We were facing the radiant of the Leonides. We noticed only 24 shooting stars although the sky was fairly clear.

Hour	RA. (1840)	Decl.	Nr.	Magnitude		Duration		Mean Length
				Max.	Min.	Max.	Min.	
3 ^h 9 ^m	125° 5	+16°	2	4	5	1.2	0.2	17°
2 44	148	+ 5.5	3	2	3	0.5	0.3	6
3 21	149	+17	3	1 1/2	4	0.5	0.2	11
4 1	160	+ 0	3	3	4	0.5	0.2	7

The first radiant is No. 75 in the Hongkong list in A. N. 3360. The second and fourth are identical with No. 35 and No. 39 of Denning's list in A. N. 3513, but the observed declinations are 2° 5 and 3° smaller than Denning's declinations. The third radiant probably belongs to the Leonides, though

the declination observed is 6° smaller than the value generally adopted. It should be remembered that we observe here in a much lower latitude than that for which the usual values were adopted.

Hongkong Observatory, 1898 Nov. 16.

W. Doberck.

Beobachtungen auf dem Observatorium in Lemberg am 13. November.

Lemberg $\varphi = 49^{\circ} 50' 2$ $\lambda = -42^{\text{m}} 29^{\text{s}}$ v. Berlin.

Die Sternschnuppen der Novembermitte konnten hier nur am 13. beobachtet werden, da am 12. und 14. der Himmel bedeckt war. Auch am 13. lagerte ein dichter Nebel am Horizont, der schliesslich um 1 Uhr Nachts allen Beobachtungen ein Ende machte.

Das Ergebniss der Beobachtungszeit (von 10 bis 1 Uhr Nachts) war folgendes: