Mr. S. Sitaramaiya of the Kodai Kanal Observatory also took observations of meteors of the last Geminid shower. The following are the results :—

Date and period of watch.	Serial No.	Time.	Length.	Brightness.	REMARKS.
		H. M.	°		
December 10th, 4h.-30m. to 5h.-30m.	1	5—21	2	Very faint.	The time used is Indian standard time. Thin cloud on the western sky on the 10th ; and the sky was clear on 11th and 12th during observation.
December 11th, 4h.-45m. to 5h.-30m.	1	5— 1	2	Do.	
	2	5—11	6	Do.	
	3	5—14	2	Faint.	
	4	5—23	2	Very faint.	
December 12th, 4h.-20m. to 5h.-30m.	1	4—39	8	Faint.	
	2	4—40	9	Do.	
	3	4—43	6	Do.	
	4	4—45	4	Very faint.	
	5	4—52	5	Faint.	
	6	5—11	5	Bright, mag. ±.2	

Extracts from Publications.

Dr. Crommelin, at the Meeting of the British Astronomical Association held on the 30th November 1910, speaking in connection with Halley's Comet, said that Mr. Beattie (one of the observers) drew the conclusion that the Earth did not pass through the tail, but he (the speaker) would not like to pronounce positively on that. It was pretty clear that they did not go through the immense long streamer which all the observers had described in such glowing terms : that was seen in the morning sky at the time of transit, and for two or three days after. It was a puzzle to him how that beam went on so long in the eastern sky, when the Comet itself was in the west. Mr. Innes made the suggestion that when the tail got near the Earth, the Earth expelled it ; that the Earth had the same repulsive power as the Sun, and turned away the tail, so that they did not go through it. It was a pretty theory, but he could not altogether accept it. It seemed to him that if the Earth had any power of the kind, it could only act on tail matter extremely near it, and he did not see how it could push out the whole of that immense beam, the head being 12 million miles away. It did seem to him, however, as if the great beam was detached from the head before it passed in the neighbourhood of the Earth. But underneath this great beam, Professor Barnard drew a broad shade of faintly luminous matter, very much like what was described of the Comet of 1901. That also had a narrow, pretty straight, bright tail, and a broad fan-shaped, faint one. He thought it was probable that they did go through that faint appendage. There was no doubt they went sufficiently near the bright tail to bring them within the faint appendage if it persisted till the Earth reached it. It was seen some days before the Earth came up to it, and if it persisted until the Earth arrived, they could not miss it. There were a number of atmospheric effects in various parts of the world about the time they would have been on that tail, and whilst no one of these was in itself conclusive, yet the combination of them made a strong case for our having gone through some of the tail matter. There was the luminous appearance of the clouds, the so-called lunar corona and curious bands of light in various parts of the sky, which might all have arisen from the presence of unwonted matter in the atmosphere. As regarded the magnitude of the nucleus, from many observations the general consensus of opinion was that its greatest brightness was that of about the second magnitude. They might have seen in the Astrophysical Journal the observations taken with the new Selenium photometer, which made the greatest brightness about the second magnitude. This instrument was so sensitive that a secondary minimum of Algol was detected, owing to the occultation of the fainter star by the brighter.

[*Journal of the British Astro. Assocn.*]

The following method of obtainirg roughly the heliographic longitudes and latitudes of spots and faculæ on the Sun, and computing their areas, is given by Mr. Maunder, Director of the Solar Section of the British Astronomical Association, and may be useful to members of the Astronomical Society of India in connection with Dr. Harrison's outline of work given in the last numbers of the Journal.

Mount a piece of millimetre-scale paper behind the telescope so as to receive the projected image of the Sun. The scale paper should be square, and 200 millimetres in length of side, and it should be fixed at such a distance that the Sun's image just touches the four sides of the square. The vertical line through the centre of the square, and also the horizontal line through that centre, should be inked-in distinctly, thus dividing the square into four smaller squares, each 100 millimetres in side, and when the scale paper is properly adjusted, the image of the Sun will be divided into four quadrants. If we call the distance of a spot from the vertical central line as X, + from the horizontal central line as Y, then the position of a spot will be indicated by simply reading it off from the scale paper, taking X as + when the spot is E of the vertical, or, more properly, the N.-S line, and Y as + when it is N. of the horizontal or E.-W line; so that—64 X + 16 Y would indicate a spot in the N.-W. quadrant 64 millimetres W. of the N.-S. line through the centre, and 16 millimetres N. of the E.-W. line. The number of square millimetres covered by the spot would express its area. The particulars would enable the spot observed to be identified; and the Director would convert the numbers thus obtained into heliographic latitude and longitude and millionths of the area of the Sun's visible hemisphere. The time of the observation must be carefully noted.

[*Journal of the British Astro. Assocn.*]

Mr. Goodacre writing to the *English Mechanic* says: "Observers of Aristararchus should always be on the look-out for the appearance of a bluish light enveloping the walls. This phenomenon has been seen by several observers, including myself and Major Molesworth. The latter also on one occasion (1897, Sept. 21st), near sunset, when ring was filled with shadow as far as W. wall, saw the central mountain and the terraces on the inner slope of the E. wall faintly visible through the shadow, as if illuminated by phosphorescence or by a light reflected from the W. wall—a remarkable and unique observation."

[*English Mechanic.*]

Mr. Edwin Holmes, writing to the *English Mechanic* in connection with Saturn's rings, says: "Proctor has dealt with the various changes of appearance the rings would present from Saturn, but treated the matter as if they were continuous surfaces. He mentions that although the satellites would, some of them, appear as full Moons, and some as crescent, this would not affect the apparent brightness of the various regions, because mutual eclipses and occultations would balance the effects due to the phases," in which I humbly submit he was in error, unless he assumes that they are so closely packed as to present a continuous surface even to an observer on Saturn. As the distance from the surface of Saturn is, from the nearest ones, only one-eighth of the distance of our Moon from the Earth, and the diameter at 50 miles, each about one-fiftieth of our Moon, they would exhibit a disc one-sixth of that of our Moon, decreasing, of course, according to positions and distances, but, if separated by their own diameters, quite separately visible. Of course, there is no absolute evidence that the moonlets are any bigger than cricket-balls; but what a countless number would then be required to form such a gigantic ring; and unless we suppose them so close together that only a portion of each moonlet situated above or below the common orbit plane can receive any light from the Sun, it appears to me that crescents should be visible to Saturnians situated to view the dark sides of their globes.

What a task for Saturnian Astronomers, if there existed such, to identify these hundreds of thousands or hundreds of millions of Moons—to follow them in their sinuous, ever-changing paths, and to calculate their eclipses and occultations! What a miracle these rings are!

[*English Mechanic.*]

Mr. A. S. Eddington in an introduction to his paper on the Systematic Motions of the Stars of Professor Boss's Preliminary General Catalogue says :—

"The main purpose of the present investigation was to determine as accurately as possible the directions, velocities, and relative proportions of the two star-drifts. The work was arranged for the purpose of developing rather than demonstrating the theory. But I shall also endeavour to exhibit the strong indications of the two streams as they appeared in the course of the work. In this connection, it may be well to define exactly how much is claimed for the two-drift* theory. The existence of two streams of Stars appears to me beyond doubt : that is to say, there are two favoured directions of motion in which the Stars appear to stream ; this peculiarity is substantially the same in all parts of the sky, and it is by far the most noteworthy feature in the distribution of the stiller motions. In the light of Professor Dyson's researches on the very large proper motions, I do not see how this conclusion is to be avoided, unless we suppose that even the largest and best determined proper motions are altogether unreliable. When, however, this phenomenon is expressed as a quantitative law, and the amount of the streaming is measured, some approximation is necessary. Two forms of mathematical approximation have been used, namely, the two-drift hypothesis (which may be regarded quite apart from the tempting inference that the Stars belong to two intermingled, but originally separate, systems), and Professor Schwarzschild's ellipsoidal hypothesis. Working on either of these theories, it has been found possible to construct an ideal representation of the universe of a fairly simple character, which will summarise quantitatively as well as qualitatively the most significant features of the arrangement of stiller motions. But such an ideal representation is essentially an approximation; it must be our object, as we obtain improved data, to discover what modification may be indicated, and thus to proceed to a closer approximation. Undoubtedly a complete account of the stiller motions will need to take account of the spectral types of the Stars, for there is considerable evidence of a connection between spectral type and linear motion; up to the present it has not been possible to take this heterogeneity into account. Realising, then, that the two-drift theory is to be regarded only as a first approximation, it is claimed that it yields a close approximation, perhaps as close as can be attained in the present state of our knowledge of stiller motions (see, however, § 6). Further, it correlates for us the distributions of motion observed in different parts of the sky, and shows that they are all essentially the same phenomenon, seen under different aspects.

[*Monthly Notices of the R. A. S.*]

* It is convenient to use the word *stream* for a general tendency of the Stars to move in a favoured direction, without implying any hypothesis as to the cause or exact distribution of the motions; the word *drift* is used to denote a system having a distribution of individual velocities according to Maxwell's law.