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Minutes of Monthly Meeting of the Astronomical Society of India, held on Tuesday, the 28th March 1911.

H. G. TOMKINS, F.R.A.S., *President*, in the Chair.

The Monthly Meeting of the Astronomical Society of India was held in the Imperial Secretariat Buildings (ground floor) on Tuesday, the 28th March 1911, at 5 p.m.

The Meeting was opened by the President, who called upon Mr. Bannerjee, in the absence of Mr. Mukerjee, the Secretary, who had gone up to Delhi on duty, to read the Minutes of the last Monthly Meeting held on 28th February 1911. The Minutes were duly confirmed. At the request of the President Mr. Bannerjee next read the list of donations to the Library, and a vote of thanks was accorded the following donors:—

PROF. EMMANUELLI	.	A Treatise on the Total Eclipse of the Sun of April 1911.
MR. EVERSHED	.	An article on the Angular Speed of Rotation of a Long-enduring Prominence.
DR. LOWELL	.	A Set of Transparencies of Mars, Jupiter, and Saturn.
MRS. TOMKINS	.	Rs. 16.

The President announced that the following Societies and Observatories had put the Astronomical Society of India on their lists of exchanges, and a vote of thanks was duly returned to them:—

The Astronomical Society of Italy.
The Astronomical Society of Barcelona.
The Royal Observatory of Scotland.
The Vatican Observatory.

The President next read the names of the following members who had been elected at the last Council Meeting, and these were duly confirmed :—

(1) Mr. Sarat Chandra Bhattacharya, M.A., F.C.S.
(2) Mr. Ronald Shaw.
(3) Major E. L. Perry, I.M.S.
(4) Mrs. Harrison.
(5) Mr. Surendra Mohan Chatterji, B.E.

New members were then admitted and welcomed in the name of the Society by the President.

The first paper of the evening was contributed by Mr. Rakshit, Director of the Meteor Section, on a table compiled by him for use with the Star Charts. Mr. Rakshit illustrated his paper by working out an example of the use of the table on the blackboard.

The President—The table is very handy and complete. The meridian being of course over your head from north to south, the table simply enables one to find out roughly the constellations which are in that region at a given time by direct reference to the Star Charts at any time of year.

Mr. Holmes—How are the Roman numerals arrived at; are they worked out ?

The President—The Roman numerals represent the hours of right ascension and are worked out from the data in the other columns. The right ascension is the position of the star, reckoning from the first point of Aries. The decision as to what number to put in each column is a matter of simple calculation and has been worked out by Mr. Rakshit. There is nothing new of course in the method, but it is a very handy table, especially for beginners, of whom there are a good many among our members.

A vote of thanks was duly accorded Mr. Rakshit.

Mr. Rakshit then read a paper on the Lyrid Meteor Shower, illustrating his remarks with lantern slides.

The President—This is a forecast of the shower that is to take place at the end of next month (April), and I hope members will take an interest in it, and that we shall get some results.

A vote of thanks was duly returned to Mr. Rakshit for his paper.

The next paper of the evening was read by Mr. Holmes on the Meteorite of the 24th of November 1910. The lantern slide pictures for this paper were unfortunately not ready for reproduction and will appear at the next meeting in April

Before inviting discussion on this paper, the President read a note on this meteorite, received from the Maharajah of Jalawar in November, which had already appeared in the JOURNAL.

The President—It seems to me that from this information this meteorite must have moved in a line from north to south. It was seen at Jalawar and also at Mhow and Central India.

Dr. Harrison—Recalling the fact that meteors become luminous when the meteoric mass passes through the air, it seems possible that the air might itself become luminous from the intense heat engendered. Is it not possible that when the meteor itself has passed, the luminosity of the air might remain and thus account for the trail? Even in what seems to us still air, we know that there exist numerous slight air currents, and this would of course account for the zig-zag appearance of the trail.

The President—Will that account also for these extra bright spots on the photograph?

Mr. Simmons—With reference to the trail not starting from the top of the plate, I would suggest that this might be due to the angle at which the photograph was actually taken. It was of course taken after the meteor had itself actually disappeared. With regard to the zig-zag path of the meteor, we do hear that meteoric dust exists. Is it not possible that this heated dust may be responsible for this zig-zag appearance in this case?

The President—You mean that the dust is the result of the combustion of the meteor?

Mr. Simmons—I do not say it is so. I only make the suggestion.

The President—I certainly think it is likely. Could Dr. Harrison tell us if he thinks one could get a spectrum of a trail of the kind seen in the present instance?

Dr. Harrison—I think you might.

Mrs. Voigt—Did the meteor end at the place where it was photographed?

The President—I do not think so; from the accounts given it travelled on towards Central India. The trail left behind seems to have lasted about half an hour.

I think it possible that the meteor might have met with more resistance in one part of its course than in another, and that this might account for the bright patches in the trail, or they may be merely an overlap of the trail caused by air currents afterwards.

The President then showed a lantern slide picture of a photograph he had taken near Bannu, which showed a remarkable streak right across its face, and which might have been the path of a meteor.

The President—One of the best proofs we could have to show that the Society is combining together is the case of this meteorite of the 24th of November 1910. It indicates the importance of working together, and of any one who makes any observations bringing them before the Society.

A vote of thanks was duly returned to Mr. Holmes.

Dr. Harrison now read a paper on the testing of a Mirror, illustrating his remarks with lantern slide pictures and black-board drawing.

The President—There is just one practical point here that I should like to mention which Dr. Harrison did not. You have got to get hold of the right position in the focus for your screen. A good many years ago I read of a method in the *English Mechanic* and I have adopted it since. It is important to have your screen and your artificial star fairly near together. Now what I want to explain is this: You have your rays meeting at a given point—the focus—and you must see that your screen is at the same point. Now if your mirror is a perfect sphere, and if your screen is in focus, the whole of your mirror will darken at once when the screen is passed across from the left. If you bring your screen nearer to the mirror, it will cut out the rays one by one and the shade will come on from left to right. If you have your screen too far away from the mirror, the shade will similarly come on from right to left, so that if it comes on from right to left you are too far away, and if it goes on from left to right you are too near. You can thus get the exact position of the screen by experiment. Some people take the mean centre of curvature for the position of the screen. I think it would be better to take the centre of the rays from the outside zone to start with.

A hearty vote of thanks was returned to Dr. Harrison.

Mr. Sirkar next read a paper on Standard Time.

The President—This paper raises an important question whether Calcutta should adopt Standard Time, or why it should not do so. Of course there is the mercantile point of view to be considered in the question, and we might discuss this at the next meeting.

A vote of thanks was returned to Mr. Sircar for his paper.

The President then showed some lantern slide pictures of Mars, Jupiter and Saturn received from Prof. Lowell of the Flagstaff Observatory, America.

Mr. Holmes—I notice the dark rings round the Polar Caps. Is this supposed to be water ?

The President—Yes, I think so. I believe Prof. Lowell puts them down to the melting of the Polar ice.

A vote of thanks was accorded to Prof. Lowell.

The President—There are just two things which I forgot to announce—the first is that the Library is now open to members, and those wishing to remove books may send in their deposits to the Treasurer; and the second is that at the last Council Meeting it was decided to extend membership of the Society to people in foreign countries, and the Society would be glad to hear from members who may have any such names to propose.

The Meeting was then adjourned to 5 p.m. on Tuesday, the 25th April 1911, in the Imperial Secretariat Buildings.

Paper on Standard Time.

BY C. K. SARKAR, C.E.

The question of a standard time has once more been brought to the fore by Reuter's message that the Republic of France has after all adopted the Greenwich time as the standard for their country, and the patriots have ultimately capitulated before the advance of the idea of uniformity in scientific methods. Attempts have of late been made to have a common standard of measurement of time, space and weight in all the civilised countries of the world.

The method of measuring time, or at least the primary one, was by watching the revolution of the heavenly bodies, such as the Sun, the Moon or the Stars. To a casual observer the diurnal motion of the heavenly bodies may appear to be uniform, but a close study at once reveals the fact that such a belief is an erroneous one. It is no easy task to measure the absolute length of time. The difficulty lies in fixing a common standard of measurement. For astronomical purposes, the standard is taken as the period that elapses from the culmination of one star to the culmination of the same star the next day. This is called a siderial day. The siderial day commences when the first point of Aries passes the meridian, and a clock correctly adjusted to siderial time will read 0 hrs. 0 mts. 0 secs. at that period.