

## LETTERS TO THE EDITOR

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[The Editor urgently requests correspondents to keep their letters as short as possible. The pressure on his space is so great that it is impossible otherwise to insure the appearance even of communications containing interesting and novel facts.]

## Meteors

HERE, November has generally been unpropitious for astronomical observations. However, during favourable intervals I have seen many brilliant meteors; from twenty to thirty on an average every night. They were principally seen with the face to the north, and glancing from shoulder to shoulder; but not a single Andromede did I see. I had the pleasure of seeing altogether about a score of Leonids before the 12th and after the 19th November. Leo Minorids and Arietids were plentiful, and a goodly number of Geminids were seen; but the richest field for meteors during the month was in the neighbourhood of the Plough. November 6, at 4.30 a.m., a large meteor passed from  $\gamma$  Ursæ Majoris right down to the horizon. From 4.35 to 5.15 three veritable Leonids proceeded from the Sickle; one dashed down to the right-hand, and another from the top of the Sickle to the left over the Lion's back. They were very large. November 10, at 8 p.m., a brilliant meteor started from a point nearly half way between Aldebaran and Saturn, and disappeared at a point down more than half way to the horizon. At 9.30 a very bright one appeared at a point about  $1^\circ$  above Castor and above Jupiter to the north. At 11.25 an exceedingly large and brilliant meteor burst out from  $\frac{1}{2}^\circ$  below Menkar (in the Whale), and went down at right angles to the very horizon, leaving a long, bright streak behind. November 11, a large one, at 0.15 a.m., dropped down to the horizon from  $\theta$  Ursæ Majoris. At 0.55 a.m. a very large one proceeded from  $\frac{1}{2}^\circ$  to the right of  $\alpha$  Lacertæ and disappeared at  $\gamma$  Cygni. November 18, at 1.40 a.m., a very large reddish meteor burst out from the top of Ursa Major's head, and passed right above Vega, and disappeared about  $4^\circ$  beyond it in a strange sparkling explosion. At 1.55 a.m. a very brilliant meteor dashed out about  $2^\circ$  above  $\alpha$  Arietis, went through the Square of Pegasus, leaving a beautiful stream of blue fire behind, and lasting a few seconds. About 5.30 another large blue meteor passed from the centre of Leo's back through a point  $4^\circ$  above Denebola, and ended in a beautiful explosion  $15^\circ$  beyond. On the night of November 22 there was a fine display of (generally) large meteors from Taurus to Ursa Major; many of them proceeded from the Lion's Head. During the month a great number of meteors passed from some point in Scorpio, under Jupiter and Mars, right into the Lion's Head. They were all large and bright. During the last half of the month some fine displays of morning meteors were seen. At 4 a.m., November 29, I observed a very large and swift meteor. It blazed out from a point about  $8^\circ$  above Denebola, and dashed with great velocity up the heavens, passing  $4^\circ$  above  $\delta$  Leonis and over the Lion's Head, and exploded about  $5^\circ$  beyond, leaving a stream of the most beautiful blue light in its wake that I ever witnessed.

DONALD CAMERON

Mossvale, Paisley, December 3

As your columns frequently contain notices of meteors, I may mention that I observed one of unusual brilliancy last night (November 28) at 10.50. It appeared in the constellation Taurus, and, following the line of the ecliptic, disappeared about five to ten degrees above the eastern horizon. The meteor was visible for not less than fifteen seconds, had a brilliant train or cone of light of from two to three degrees in length, and outshone Jupiter, near which it passed. From the slow, angular movement of the meteor I feel certain that the train was not an optical impression, but a real luminous object.

F.R.S.E.

Edinburgh, November 29

A FINE meteor was observed here by me at 10h. 38m. last night, Wednesday, November 28. Bursting into sight near  $\frac{1}{2}$  Ursæ Majoris, it passed in a course almost parallel to, but about  $2^\circ$  north of, a line joining  $\alpha$ ,  $\delta$ ,  $\epsilon$ ,  $\zeta$ , and  $\eta$  Ursæ Maj., its light expiring near  $\lambda$  Boötis. Length of path =  $40^\circ$ . No train was observed; the only variation of uniformity of light being at

about half way of its passage, where it slightly paled for an instant and then as quickly recovered. Duration about four seconds. Brilliancy three or four times Venus at its brightest. Colour resembled that of magnesium light. W. WICKHAM  
Radcliffe Observatory, Oxford, November 29

LAST night, about 10.30, I saw a magnificent bolide shoot across the sky in a northerly direction. It came from the middle star in Orion's belt, and disappeared at a point almost in a line with "the Pointers" in the Great Bear, and at a distance below the lower of the two stars almost equal to the distance between them. Its path was perceptibly arched, but not to any great extent, and, as far as I could judge, it was not parabolic. When the bolide first appeared, it seemed a mere luminous point moving with great rapidity, and without a tail. But about half way it suddenly grew large and brilliant, a tail shot out, and the path behind it remained luminous and distinct. I could compare the bolide at this point to nothing so much as to a red-hot cannon ball emitting sparks of fire. It was accompanied by no sound, and was gone in half a dozen seconds. During its passage the streets seemed to be lit up with the electric light. It was apparently so close that I should think a few miles would have made a very sensible difference in its apparent position in the heavens.

J. B. OLDHAM

Stockport, November 29

LAST night at 11h. 2m. I saw in the north-west, near the horizon, one of those slow-moving balls of fire, not so bright as an ordinary meteor, and leaving no train. This seemed the size of a cricket ball; but I have seen one the size of a cheese-plate. A few flashes of lightning occurred soon after. From the slowness of the motion the phenomenon seemed to be wholly atmospheric. It was in sight for about three or four seconds. It instantly suggested an incandescent vortex whorl; but I cannot say whether the appearance confirmed the idea or not, for I do not know how such a meteor would look. Its red light might be due to its proximity to the horizon, perhaps  $8^\circ$ . Hence there is no dependence to be placed upon my impression that the light was the result of friction rather than of electricity. I have seen probably a dozen in the course of my life, always in the west or north-west, and always about the same height from the horizon, but never annular.

HENRY H. HIGGINS

Rainhill, December 4

## "Anatomy for Artists"

MAY I add a few more words on the subject of Mr. Marshall's book, and in answer to his letter in NATURE? Mr. Marshall says the reasons that led him to adopt the plan of omitting reference letters to his illustrations of the bones "still remain sound." Turning to p. 30 of the book to learn those reasons, I find he says that "The numerous minute points which demand the attention of the anatomist and the surgeon necessitate such aids; but the art-student's mind should be left unincumbered by such unnecessary details."

I cannot see that this is a reason; I wanted references to what is described in the text—to the necessary, not the unnecessary details.

Secondly, Mr. Marshall says, "The pure form of the bones, represented on so small a scale, in black and white, would have been seriously marred by such references." If this be "sound," may there not be more and equally sound reasons for opposing it? I think there are; and if Mr. Marshall will turn to p. 136 of the book, I will try to show him how his plan works. The student reads there that "All the bones of the hand are visible in the skeleton, on its palmar aspect (Fig. 58), carpal, metacarpal, and phalangeal;" he turns to Fig. 58, but where is it? It is mentioned in a list of figures under three illustrations. He has to make up his mind which of the three is 58, recalls that it is the palmar aspect, and goes on. He has no clue, let Mr. Marshall observe, by which to know which are the carpal, metacarpal, and phalangeal portions of the hand for which he originally looked at the palmar aspect of it. He hopes he may come to that; and, reading on, finds that the eight carpal bones are "in the carpus;" but then, which is the carpus? He does not know, and is not told. Never mind, he thinks, he will find that out by the description of the single bones, and, beginning with the first-mentioned, he reads that the semi-lunar bone "... occupies the centre of the first row, and is crescentic